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CLEANING UP STREET IN FRONT OF HUDSON-FULTON PROCESSION, NEW YORK

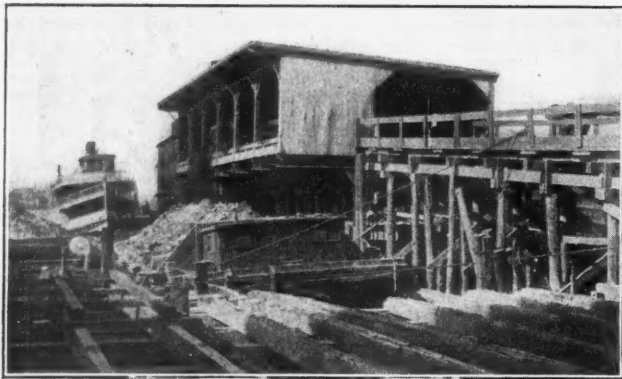
THE fact has often been referred to by the MUNICIPAL JOURNAL that for a municipal department which is honestly endeavoring to do faithful work, the best plan for meeting criticism is to take the public into its confidence and give it every opportunity to learn the facts as to the conditions under which it works and the actual details of its operation. The Commissioner of the Department of Street Cleaning of Greater New York, William H. Edwards, is convinced of the truth of this and has recently been presenting before various groups of citizens, in the several boroughs of the city, lectures illustrated by stereopticon views, in which he endeavors to familiarize them with the work of his department. The facts presented relate chiefly to the twelve months of his incumbency as Commissioner, although much of his information was undoubtedly obtained during his previous service as Deputy. The photographs from which the lantern slides were prepared have been collected by Mr. F. L. Stearns, engineer of the department, during fourteen years of service and embrace not only those of the present day, but those of the past and some machines which promise to make street cleaning in the future a less troublesome task.

While the Commissioner finds it desirable to somewhat vary his talks concerning the department in the different boroughs to introduce local color, a fair sample of how he places the

facts before the public is offered by an address delivered in Brooklyn last week. As an illustration of how this department makes public details concerning its operation, and especially because of the interesting facts contained, we present this lecture as nearly as possible as it was delivered, using as a basis notes taken by our representative at the lecture; adding to it certain information of general interest. Commissioner Edwards' remarks were practically as follows:

I want to bring to you the story of the Department of Street Cleaning, to tell you what I am trying to do, so that when you criticise, you may criticise intelligently. We expect criticism; we want it, and we certainly get it. When one stops to consider that 6,500 men start out every morning on the big task of cleaning the city's streets, each to do his individual share in cleaning and making them more sanitary, that the Department of Street Cleaning is responsible for the cleaning of the surface of the streets, and removing ashes, rubbish and street sweepings from the entire Borough of The Bronx, Westchester, Riverdale and other outlying towns in that neighborhood, the Borough of Manhattan, Marble Hill, Brownsville, Williamsburg, and all Brooklyn, Coney Island and Sea Gate, he may realize the vastness of the proposition. These forces are like nothing more nor less than doctors doing their share of keeping the death rate down.

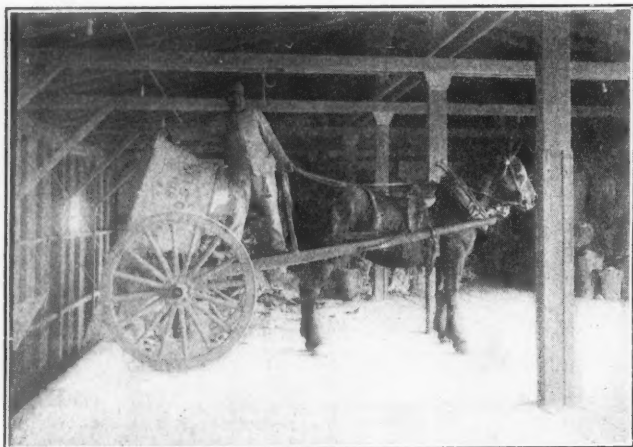
I come as Commissioner of Street Cleaning, not to gain your praise, but to show you that I am in "dead earnest"; and to tell you that every man in the department works faithfully eight hours a day, that he is under the Civil Service protection, and that I



DUMPING BOARD AT WATER FRONT

could not appoint my brother to a position if I desired to. But I am in favor of Civil Service, for it helps the men, and each of the sweepers and drivers who receive \$800 per annum, is hopeful of being promoted to be foreman, or a superintendent at a salary of \$3,000 per annum. But what we need is a pension fund for the good old tired employees who have been worn out in the service. At present we employ these old sweepers, who have seen twenty years or so of service, in the stables, where they have charge of the clothes of the active men and do odd jobs around, being in a way valets to the sweepers.

It might be interesting for you to know that the death rate in New York City during the past year was the lowest on record, and I will tell you the reason for this. The Board of Estimate made an appropriation of \$100,000 for experimenting upon the streets of New York with pressure flushing machines, using any which might be feasible at so much per day, to make tests and to obtain figures for use in preparing to contract for such service. There is no other way to clean the streets except by water or suction which removes all dust from the surface of the streets. The dust



RAILROAD DUMP, BROOKLYN

pest is surely a great nuisance which must be gotten rid of. I expended \$60,000 in making these tests, and the remainder has been turned back into the treasury. When I started in on January 1 of this year I did all I could to cut down expenses, and there will be \$550,000 unexpended balance turned in to the treasury. For cleaning all the boroughs of garbage, ashes, refuse and street sweepings the Board of Estimate and Apportionment allowed an appropriation of \$7,418,299.20, and this amount is divided among the boroughs, Manhattan receiving \$4,230,441.70; The Bronx, \$560,371.30; Brooklyn, \$2,492,481.20; and for general administration, \$135,005.

Each of the boroughs is divided into districts for working purposes, and, so far as dumps are concerned, both the boroughs of Manhattan and The Bronx are in good shape. But in the Borough of Brooklyn the task is growing more difficult every day, as there are but two dumps where garbage may be dumped, with the exception of a third one at Coney Island during the summer months. While a large part of the garbage is hauled only an average of two miles, there is a considerable portion hauled for six or seven miles, which is a very expensive, extravagant and foolish practice.

The Borough of Brooklyn, which has a population of nearly a million and a half, covers more surface than the boroughs of Manhattan and The Bronx together, and the physical conditions render the care of this territory a most stupendous task. The borough is divided into eight districts and forty sections, and it has 651.5 miles of paved streets, out of a total of 900 miles of streets, the area of the paved streets being practically 15,722,667 square yards. The force cleaning the streets is about 800 men, and the force

collecting the waste is about 600. The waste handled last year was 561,657 cartloads of ashes, 117,117 cartloads of rubbish and 105,369 cartloads of garbage, which means a total weight of 643,206 tons.

The two garbage dumps in Brooklyn are located one at the Wallabout and the other at Sixth street and Gowanus Canal. Here the garbage is placed upon the scows of the New York Sanitary Utilization Company, which operates the Barren Island incinerating plant. The existing contract provides for an additional dump, but the location is limited to some point between Gowanus Canal and Sixty-fifth street, and as this property is being developed for steamship terminals, which are considered more valuable than dumps, it will be difficult to locate a dump in that vicinity. I have also considered establishing a relay station, but there have been so many complaints received against this that it is deemed unwise at the present time. But some method must be devised immediately to put the garbage business on a more economical basis, as the present long haul causes a great strain on the department horses and proves very costly.

For the five years previous to the present, the removal of ashes, rubbish and street sweepings was done by the American Railway Traffic Company which, in conjunction with the Brooklyn Rapid Transit Company, operated fifteen inland railroad rubbish stations. The company handled all matter delivered at these stations for 34 cents per cubic yard, transporting all the refuse (after salables had been removed) to property which the company was filling in on the outskirts of the borough. On the call for bids before the commencement of the present year by Commissioner Foster Crowell, then in charge, the American Company increased its bid to 44 cents, while the Borough Development Company submitted a bid at 34½ cents per cubic yard. The Commissioner took the matter up with the Borough Development Company and also with the Board of Estimate and Apportionment, and the company was awarded the contract. Not only the price per cubic yard was considered, but also the location of the different dumping stations which the company offered, with regard to the haul. It was appreciated that the cost for cartage would be more under this contract, as it called for an increase of 68 in the number of carts in Brooklyn, but even with this addition the cost of ash disposal is not so great as it would have been under a continuance of the contract with the Atlantic company at the advanced price. There are now three or four inland stations, and a number of railroad stations.

One source of revenue to the city which is not generally known of, is that received for the privilege of trimming the scows. During the past year a contract for this was entered into, after plans and specifications had been prepared and bids advertised for, and the city receives the sum of \$1,717 per week from a contractor for the privilege of sending men aboard the scows at the dumps for Manhattan and Bronx boroughs, and taking therefrom any barrels, bags, spoons, cans, carpets or household goods, or anything which they might think useful. The business undoubtedly is remunerative, for it brings in over \$90,000 per year to the city, and the contractor surely makes a profit. The privilege in Brooklyn is controlled by the Borough Development Company, which probably lets it out for about \$45,000 or \$50,000.

All ashes and sweepings are taken by scow to Riker's Island, located in the East River opposite 160th street, for filling purposes. The island originally contained 87½ acres, to which has been added 63½ acres since the filling in was started by Col. Waring about ten years ago, and there are 179 acres yet to be filled. It is estimated that this area can be filled out to the bulkhead which has already been constructed in about fifteen or twenty years, owing to the increase in the amount of ashes from year to year. The filling is done by locomotives and cars, which haul the material to whatever section it may be needed in, after it has been removed from the scows by machinery. It is believed to be the ultimate intention to remove the city prison and other institutions from Blackwell's Island as soon as the filling and grading at Riker's Island are completed, and to turn over Blackwell's Island to the children of the city as a playground.



LITTER IN A BROOKLYN STREET



WASTE PAPER SQUAD, WITH BAGS

Two companies have the contract for removing ashes and sweepings from the water front dumps of Manhattan and The Bronx for filling in Riker's Island. The Water Front Improvement Company hauls from all the North River dumps and the Clinton street dump on the East River, while Dailey & Ivins haul from the other East River dumps and from all dumps on the Harlem River. There are five different sizes of scows, the load carried by the smallest of which costs the city \$68 and that carried by the largest \$105, the average price being between 30 and 40 cents per cubic yard. The Borough Development Company charges 34½ cents per cubic yard for this work in Brooklyn, but the city does not control the right to award the trimming privilege there, which nets an income as stated above.

Among other ideas which the Commissioner has been endeavoring to bring prominently before the public is that of keeping litter off the streets. This may be done by a little forethought of the Department in locating receptacles for receiving newspapers and other litter, and by care of the citizens in using such receptacles. These would enable the litter to be gathered up in a systematic manner at much less expense than at present and thus result in saving money to the city, and meantime the streets would be kept in a much more presentable condition. Peaceable methods are to be tried for a time in educating the people up to their duties in this respect; but there are existing ordinances against such littering of the street and it is the intention of the Commissioner ultimately to demand an enforcement of these and mitigate the nuisance which has made the duties of the head of the Street Cleaning Department the most burdensome and thankless of all those entrusted to municipal officials. It is the intention to place thousands of additional receptacles on the streets and to send placards to all householders requesting the co-operation of men, women and children

in keeping the streets free from newspapers, lunch boxes, and other such unsightly materials. The Commissioner has recently established a special squad whose chief duty is to gather up waste paper from the streets. This squad was started in operation about a month or two ago and parades the principal streets after the regular white wings complete their day's work, picking up every piece of paper and similar matter which is found on the street. The regular sweepers work from 7 a. m. to 4 p. m., when the new squad takes up the work on Fifth Avenue, Broadway, 125th Street and other principal thoroughfares, remaining in service here during the time that there is any considerable traffic. This service has already demonstrated its usefulness, but the Commissioner points out that there would be little need of it should citizens co-operate or the ordinances be strictly enforced.

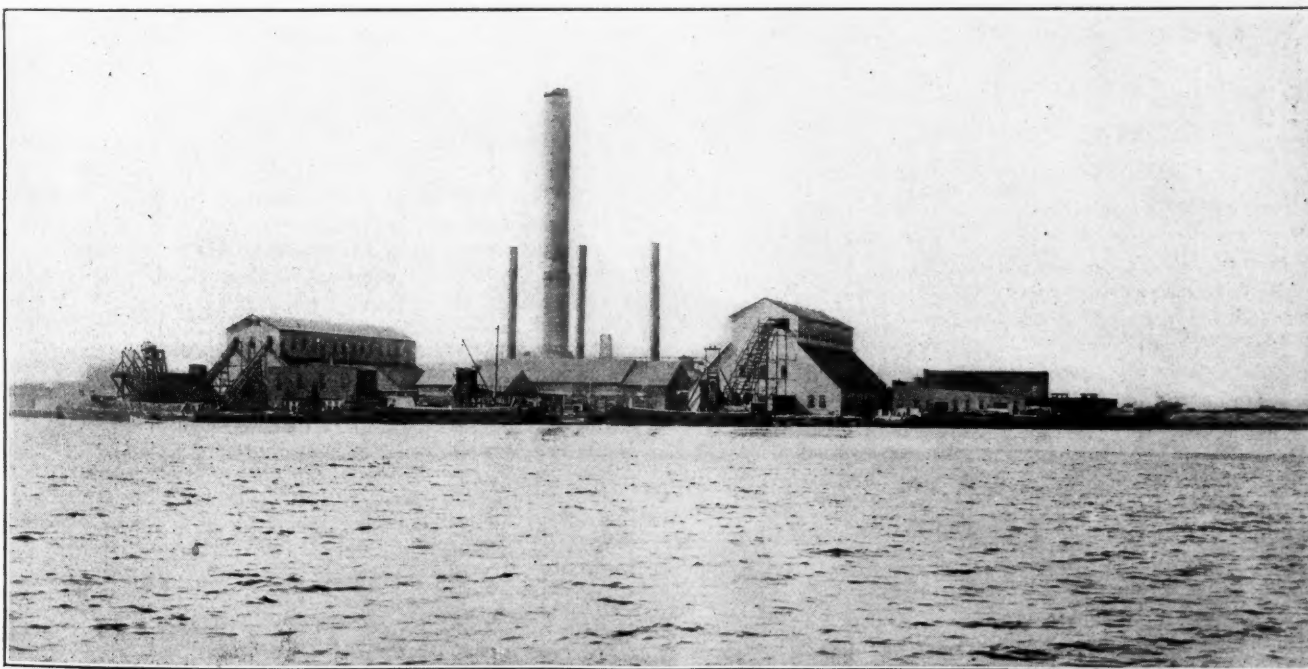
Another feature of special street cleaning is that performed in connection with parades or pageants of any kind. Sweepers are stationed along the line of march with short-handled brooms and small hand bags and take up immediately all droppings and refuse of every description which may find its way onto the



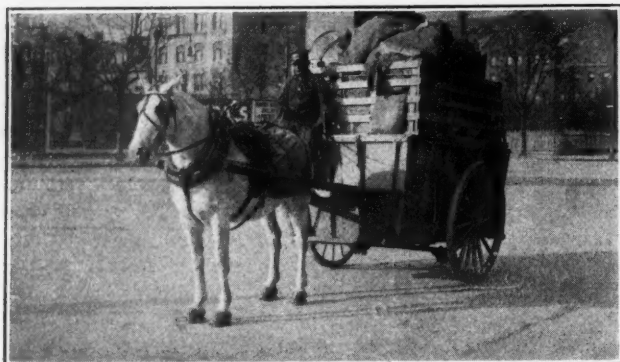
CLEANING UP IN FRONT OF PARADE

street, thus keeping it as clean as a parade ground. Also preceding the mounted police, who lead the parade, a squad of four or five sweepers armed with this hand outfit march, accompanied by a can-carrier wagon into which they dump any sweepings as soon as gathered. This service is shown in the illustration at the head of this article.

Faulty tail boards on private refuse collection wagons and on trucking wagons which haul all kinds of material are given a large share of the blame for dirty streets, and the Commissioner urges that citizens secure the arrest of drivers who offend in this manner. As the city carts are not permitted to haul away



GARBAGE UTILIZATION PLANT, BARREN ISLAND



NEW YORK RUBBISH CART

steam ashes from business houses and manufacturing plants, this must be done by private conveyances, which also carry away the debris from repair and construction work on buildings. Private carts hired by the Sewer Department to carry away mud removed from catch basins also offend to a certain extent, and there are numerous other causes. The carts of the Street Cleaning Department do not have tail boards and the subordinate officers and drivers have been given strict orders to be careful in loading them to see that none of the ashes or refuse is permitted to drop into the street.

In addition to the paper and other street litter the Department collects refuse of all kinds, such as old beds, mattresses, trunks, furniture and household waste in great variety. In Manhattan the rubbish is all handled by the Department, some of it being burned in incinerators (of which there are two on the island, one at 47th Street and one at Delancey Street) and part being carried to Riker's Island for filling. In Brooklyn, however, as stated above, the rubbish is disposed of by contract. The garbage from all the boroughs is carried to Barren Island, where



ONE OF THE BROOKLYN INCINERATORS

it is treated by a utilization process which extracts the grease which, together with the tankage, is sold; this also being done by private contract.

All collection, whether of garbage or refuse, is done by the city and the material is handed over to the contractors at stations so situated as to avoid creating a nuisance as far as possible. Along the water front are dumping boards, where the material is dumped into scows. In Brooklyn there are also railroad dumps, where the carts dump from elevated platforms directly into cars. There are also relay stations where refuse is dumped into storage bins from collecting wagons, to be later transported by larger trucks to the water front. In Brooklyn there are seven water dumps, six railroad dumps and three relay stations; while there are fourteen dumps on the water front which serve Manhattan and the Bronx, a number being on the Harlem River. There are also a few land dumps in the Bronx, where the waste matter is used for filling in land. The Borough Development Company, which handles the Brooklyn rubbish, has constructed thirteen incinerators during the past

year, at each of which the rubbish is sorted, all valuable articles being picked out and the unsalable portion burned.

We described some months ago the experiments which were being conducted by the Street Cleaning Department on appliances for cleaning streets. These have included sprinklers, flushers, squeegees and vacuum cleaners, both horse-drawn and automobile. These experiments were continued to the end of the season and we hope to be able very shortly to publish some further results obtained. Tests have been made of the Sanitary, American, Byers-Ratikan, Connelly and Squeegee machines, which have been illustrated heretofore in this journal; also of the Studebaker machine, photograph of which is shown here-



STUDEBAKER FLUSHING MACHINE

with. This machine, the latest to be tested by the Department, differs from the other flushing machines in that there is attached to the back of the wagon a gasoline engine and rotary pump for forcing the water out, whereas the other machines use air pressure for this purpose, the compressed air occupying the upper part of the tank. In the Studebaker machine it is possible to completely fill the tank with water, and the tank can be completely emptied. It is claimed therefore that twice as much water can be distributed and twice the street area covered with a single filling of the tank. Some of the machines tested have shown their superiority on smooth uptown streets, where the refuse is light, but are shown to be of little use on dirty streets of the lower east side and other sections; in which sections other machines appear to excel.

The problem which is at present engrossing the attention of the Commissioner is that of providing for the removal of any snow which may fall previous to the awarding of contracts for this work by the city. In order to assist the Department in such work about sixty snow scrapers are to be purchased, the Board of Estimate and Apportionment having recently allowed the Department an appropriation of \$10,000 for this purpose, and it is believed these will prove of great assistance, and that each of them will perform the work of 25 men, on an average. The contract for snow removal will cover only about 260 miles in Manhattan, leaving 205 additional miles of streets still to be cleaned by the Department. Three makes of machine have so far been tried and demonstrated their usefulness—the Twentieth Century, the Climax and the Austin. The blade on each of these is about 6½ feet long and it is planned to work



CLIMAX SNOW SCRAPER



TWENTIETH CENTURY SNOW SCRAPER

them in batteries of two or three, as conditions and the width of the street warrant. The blade is a foot deep and removes about 6 to 8 inches of snow. In case of a fall heavier than this, a second scraper will follow directly behind the first removing the remaining snow down to the pavement. The angle of the blade is adjustable, so that the snow may be thrown either into the gutter or into the center of the street, one use of the scrapers being the cleaning of gutters to permit the running off of melting snow and rain. During the snowstorm of a few weeks ago the scrapers were used for this purpose, spreading the snow in the middle of the street where it was quickly melted and ran away to the sewer inlets. It is expected, however, to have the plows followed immediately by wagons where possible, so that the snow may be at once shoveled into these and carted away to the water front. Where this cannot be done the ridge of snow formed by the plows will be shoveled into piles by hand and later carted away, which will require double handling. Most of the snow is dumped into the river, although it has not been unusual for unscrupulous contractors to use the sewer inlets for this purpose against the direct instructions of the city officials. One of the most vexatious problems in connection with this work is to obtain honest men to handle the

snow checks which form the basis of payment to contractors for removing snow, or to devise some scheme by which collusion between contractors and city employees will be impossible.

For housing the teams and property of the Department a magnificent new stable has just been opened at Flushing and Kent Avenues, Brooklyn, which cost \$370,000 and will accommodate 250 horses. It is a three-story and basement structure and besides housing the animals will provide storage facilities and contain the Property Clerk's headquarters, the Master Mechanic's repair shop, General Superintendent's and section station headquarters, stable foreman's office, and will be the general supply stable for the Borough of Brooklyn. Stable A, Manhattan, at Seventeenth Street and Avenue C, which was formerly an old market, is to be enlarged by the addition of two floors at a cost of \$60,000, and will then accommodate 240 horses and be the Manhattan headquarters for the Department. Plans are ready also for a new \$50,000 stable for Coney Island.



THE PRIZE HORSE OF THE DEPARTMENT

Commissioner Edwards commends very highly the men of his department and the manner in which the drivers care for their teams. At the National Horse Show at Madison Square Garden last month, each of the thirteen department stables entered a horse for competition and the one entered by stable H, which is shown above, received the first prize.



DUMPING SNOW INTO RIVER FROM A NEW YORK DOCK.

A MUNICIPAL PURCHASING DEPARTMENT

All Municipal Expenditures of Cleveland Made Through This Department, Except Pay Rolls and Formal Contracts—Experienced Buyers Make Purchases—Figures Showing Saving Effectuated

By A. R. CALLOW, Purchasing Agent of the City of Cleveland, O.

THE Purchasing Department of the city of Cleveland, O., was created August 1, 1907, under authority of an Ohio State law, for the purpose of combining and centralizing the purchases of the various divisions of the city government coming under the direction of the Board of Public Service.

In 1908 the total amount expended through the office was \$1,688,555.43. This amount represents expenditures for everything except pay rolls and work or materials furnished under formal contracts where bids are received after due advertisement.

Purchases are now made for forty-two departments, designated as required by the Ohio State Bureau of Inspection and Supervision of Public Offices as follows:

- 1 C—Mayor.
- 1 D—City Auditor.
- 1 F—City Solicitor.
- 1 L—Justice Courts.
- 1 R—Department of Buildings.
- 1 W—Sealer of Weights and Measures.

BOARD OF PUBLIC SAFETY.

- 2 A—General Administration.
- 2 B—Telegraph and Telephone.
- 2 C—Police Department.
- 2 D—Fire Department.

BOARD OF HEALTH.

- 3 A—General Administration.
- 3 B—Sanitary.
- 3 C—Quarantine.
- 3 D—Inspection of Food, Products, Plumbing, etc.

BOARD OF PUBLIC SERVICE.

- 4 A—Board of Public Service, General Administration.
- 4 B—Purchasing Department.
- 4 C—Night Soil Department.
- 4 E—City Hospital.
- 4 EE—Outdoor Relief Department.
- 4 F—Cooley Farms—Infirmary.
- 4 G—House of Correction.
- 4 GG—Cleveland Boys' Home.
- 4 H—Engineering Department.
- 4 K—Street Repairing Department.
- 4 M—Street Cleaning Department.
- 4 O—Lighting Department—Vapor and Gas.
- 4 P—Garbage Disposal Plant.
- 4 Q—Sewer Maintenance Department.
- 4 R—Bridge Department.
- 4 S—River and Harbor.
- 4 T—City Water Department.
- 4 U—Municipal Electric Light Plant.
- 4 V—Municipal Markets.
- 4 WW—Miscellaneous—Street Trees, Street Signs, etc.
- 4 X—Park Department.
- 4 Y—Public Buildings and Lands.
- 4 YY—Public Baths and Beaches.
- 4 Z—Cemeteries.
- 6 A—Paving Permits.
- 7 A—New City Hall.
- 8 A—Special Improvements.
- 9 A—City Storeroom—Stationery.

The Ohio law permits purchases to be made in amounts less than \$500 without advertisement and formal contract, and these are the items handled by the Purchasing Department. It happens, however, that several departments may purchase like items, each in quantities less than \$500, which combined would run into thousands of dollars within a given period. No contract is required in these cases and we find it economical to avoid the red tape required to secure authority of Council to advertise and to receive bids. To make formal contracts means a delay of at least five weeks between the introduction of the authority ordinance and the receipt of bids.

The office is organized into two divisions, the buying and the clerical. In the buying division there are employed one as-

sistant purchasing agent, three buyers and three stenographers who care for the correspondence and write all formal orders. In the clerical division there are six employees, as follows: One chief clerk, one price clerk, one filing clerk, one record clerk, one biller who devotes her entire time to billing work, and one office boy.

The purchasing agent, in addition to reviewing the purchases made by the assistant purchasing agent and the buyers, purchases the larger items required by the various departments. He also makes price agreements whereby merchants agree to furnish, at a stipulated price, all that the city may need of certain articles during a given period and to make delivery of same as required from time to time during said period. Such price agreements provide that if the market prices decline during the life of the agreement a corresponding reduction in the unit price is to be made.

In order that the buyers may become more efficient, each is assigned the buying of certain classes of goods. The assistant purchasing agent purchases all surgical supplies and apparatus, drugs, oils, grease, paints, disinfectants, dry goods, wearing apparel, glassware, leather, etc. One buyer purchases machinery, hardware, packing, electrical equipment, harness, plumbing supplies, printing, lumber, paper, etc. Another buyer purchases grocery supplies, fodder, soap and household articles of every description. Still another purchases all meats, green groceries, etc.

METHOD OF MAKING PURCHASES

All departments for which purchasing is done use uniform requisition blanks, numbered consecutively in duplicate, and so bound that the carbon copy of the requisition can be retained as a permanent record in their office. Whenever any of the departments are in need of supplies or materials, they send to the purchasing agent written requisitions detailing their wants. The requisitions are distributed to the buyers according to the class of goods specified.

These men canvass the market thoroughly for the best prices obtainable. If attractive bids can be had from concerns located outside of the city of Cleveland, they are given the same consideration as those of local bidders. Absolute competition is secured on all purchases made, and price and quality alone are considered. As soon as the lowest and best bidder has been determined he is notified by telephone or letter to deliver the goods and instructed to send his invoice, bearing the requisition number, to the office of the purchasing agent.

Notation is made on the requisition, by the buyer, of the name of the firm with which the business is placed, the cost per unit and a detailed description of the kind or quality of the goods. The requisition is then given to a stenographer, who writes the formal order in quadruplicate, giving all the information relating to the purchase. These formal orders act as confirmation of the telephone or letter advices and are necessary to comply with an Ohio State law which requires that no goods shall be purchased by any municipality until the City Auditor has first certified, in writing, that there is sufficient money in the particular fund from which it is proposed to make the expenditure.

The four copies are distributed as follows:

The original, or blue form, to the Auditor, who forwards it to the merchant.

The yellow form to the Auditor for his files.

The pink form to the department where the requisition originated, so as to give them information necessary to check the goods when received and to enable them to approve the quantity and quality thereof.

The fourth, or white copy, is retained in the Purchasing Department and finally filed in the completed files with the original requisition and all correspondence, details, etc., relating to the purchase.

The entire system is based upon the requisition number, and immediately upon receipt of the merchant's invoices bearing said number the same are checked against the white copy, or outstanding order, and a cash discount, if same is allowed, is deducted. A bill is drawn by the bill clerk, using a uniform blank to which is attached the original invoice of the merchant. The bill is then sent to the department which ordered the goods. The head of this department certifies, in a space allotted for his signature, to the correctness of the quantity and quality of the goods delivered. The bill is returned to the purchasing agent, who certifies to the correctness of the price and forwards it to the board or officer having charge of the department for whom the purchase was made, which board records and approves the bill to the City Auditor for payment.

The bills referred to are made out in triplicate, the original being used as above outlined. The duplicate goes to the price clerk and the triplicate to the department for which the goods were ordered. The price clerk keeps his books from the information contained on this duplicate. His records show in alphabetical order, under a heading for each purchase item, the date of the purchase, the requisition number, from whom purchased, grade, quantity, list price per unit, trade discount, net cost per unit, total cost and cash discount.

In this way it is possible to find in a moment the prices paid for all items listed, from the time of the establishment of the department to date. For instance, under separate headings, accounts are kept as follows:

Alcohol	(Absolute)	Glue	(Ground)
"	(Wood)	"	(Liquid)
Arms	(Cross)	Hose	(Steam)
"	(Break)	"	(Cotton)
Belt	(Leather)	Lumber	(White Pine)
"	(Rubber)	"	(Norway Pine)
Brooms	(Street)	Meters	(Electrical)
"	(House)	"	(Water)
Corn	(Canned)	Oil	(Linseed)
"	(Ear)	"	(Road)
Flannel	(Canton)	Shoes	(Men's)
"	(Shaker)	"	(Women's)

There were, at the end of 1908, 3,535 different kinds of items for which separate records were kept in this convenient form.

SAVING EFFECTED

There is no doubt that the establishment of the Purchasing Department has saved the city of Cleveland many thousands of dollars. In the annual report for the year 1908 an estimate was made that the saving to the city was at least 10 per cent on a total amount of \$822,745.90. This figure was arrived at by deducting from the total amount expended through the office, namely, \$1,688,555.43, the sum of \$865,823.09, which last amount represented items where no saving could have been credited to the Purchasing Department, such as damages paid to property owners where settlement was made by the City Solicitor; purchase of land by condemnation proceedings or direct by the Board of Public Service; interest on bonds, etc.

A 10 per cent saving on the balance of \$822,745.90 seems very conservative in view of the many concrete examples of actual saving which can be shown. It will be interesting to cite a few instances where positive saving has been shown as typical of the saving accomplished on those purchase items found on the list for which a 10 per cent saving is claimed.

1st. A newly appointed official of a department affiliated with the city government, though not under the direction of the Mayor, Board of Public Service or Board of Public Safety, was about to fit up his office with carpets, desks, etc. He went to two of the largest dealers in carpets and desks and arranged for a carpet and several desks and chairs. He also provided for a typewriter. Upon returning to his office, it occurred to him that he might have secured better prices by making his purchases through the City Purchasing Department and he immediately

consulted the purchasing agent. He was asked to make up a bill of the goods which he had purchased and prices were secured from the same concerns with whom he had placed the orders, with the result that a saving of \$79.50 was brought about in a total bill of \$599.02. In securing this reduction advantage was taken only of the regular discounts allowed the city by the three firms.

2d. In 1908, 3,500 barrels of cement were purchased for the Water, Sewer Repair, Infirmary, Municipal Light, Hospital and other departments, for delivery in small quantities in various parts of the city. When, through the medium of the records kept in the Purchasing Department, this total was discovered, it was apparent that a saving could be accomplished by making a price agreement by which one company would furnish all the cement required by the various departments for the ensuing year. Bids were secured and an agreement made with the lowest bidder by which the cement was to be furnished in small quantities, delivered, at \$1.35 per barrel. The price of \$1.35 per barrel was to remain unchanged throughout the year unless a decline in price should occur, in which case the company agreed to give the benefit of same to the city. Early in the Spring the price of cement began to increase and, if it had not been purchased under the agreement, would have cost from \$1.40 to \$1.50 per barrel. Two thousand two hundred and twenty-six barrels have been used to date during the year 1909 and the advantage secured to the city from making the price agreement, covering the needs of all the departments, caused a saving of from 5 cents to 15 cents per barrel.

3d. A requisition was recently received from one of the three bath houses for 75 dozen towels. It was held in the Purchasing Department until a canvass of other departments could be made to ascertain their wants for towels of the same kind. The result was that the order could be made large enough to permit purchase of the towels direct from the mills at \$1.20 per dozen as against \$1.50 per dozen, the lowest price obtainable for smaller quantities.

4th. An official of one of the large departments, whose work does not often bring him in contact with the Purchasing Department for the reason that the work he has in charge is of a nature to require advertisement for and receipt of bids on specifications, under which a formal contract is made, found it necessary to use an electrically driven centrifugal pump for which it was not necessary to make a formal contract.

Instead of first issuing a requisition and asking the Purchasing Department to fill his requirements, he called in the representative of one of the large supply houses in Cleveland and, after carefully going over the matter with him, agreed on a type of pump which would be satisfactory. A quotation of \$238 was made to him on this pump. When the requisition for the same reached the purchasing agent, inquiries were sent out immediately to eight firms who had asked at different times to be permitted to bid on pumping machinery, with the result that two other bidders were found who were prepared to make a proposition on exactly the same pump on which the figure of \$238 had been secured. The party who had made the bid of \$238 reduced his proposition without delay to \$213, and the same pump was ultimately purchased for \$190 from another bidder who claimed to have a more advantageous discount from the manufacturer.

The percentage of saving in this transaction might lead to the suspicion that it was only one of a very few showing so large a percentage, but I am satisfied that even where we have no examples by which comparisons can be made the saving is actually going on in very large percentages, as becomes evident when you consider that the Purchasing Department's whole duty is to know where and how to secure the best figures, and that as a general rule the superintendent, engineer or head of a large department has only limited time and facilities for shopping and bargaining.

5th. The city, in carrying out its humane policy in the treatment of the infirm indigent and criminal classes, purchased a large tract of land in Warrensville Township, about 10 miles distant from the centre of the city, known as the Cooley Farms.

During the development of this property and the erection of the first buildings a number of the indigent inmates and trusty prisoners who were capable of working several hours per day were employed on the premises.

On account of the distance from the city, supplies such as groceries, meats, etc., were purchased from nearby stores. When the buildings were completed and all of the inmates transferred to the farm it, of course, was necessary to deliver supplies in larger quantities. The local dealers from whom small quantities had been purchased desired to retain the trade. An opportunity was given them to bid in competition with the packing houses of the city. The following table shows the difference in prices secured under the first requisition offered:

	Local Dealer.	Packing House.	Difference.
Beef, native, 605 lbs.....	\$.10	\$60.50	\$.09½ \$57.48 \$3.02
Beef, native, 574 lbs.....	.10	57.40	.09 51.66 5.74
Pork loins, 80 lbs.....	13½	10.80	.12 9.60 1.20
Lamb stew, 240 lbs.....	.09½	22.80	.05 12.00 10.80
Plates, 482 lbs.....	.06	28.92	.05½ 26.51 2.41
Smoked shoulders, 250 lbs.....	.10	25.00	.09 22.50 2.50
Fresh shoulders, 250 lbs.....	.11	27.50	.09¾ 24.38 3.12
Bacon, 60 lbs.....	.14	8.40	.13 7.80 .60
Ham, 77 lbs.....	.13	10.01	.12½ 9.63 .38
Bologna, 125 lbs.....	.08½	10.63	.07½ 9.38 1.25
Pork sausage, 50 lbs.....	.10½	5.25	.09½ 4.75 .50
Wieners, 40 lbs.....	.10½	4.20	.09½ 3.80 .40
Totals	\$271.41	\$239.49	\$31.92

Both propositions based on delivery to the Cooley Farms.

This, you will note, meant a saving of about 12 per cent.

The buyer, who is an experienced meat dealer, having spent nearly all his life in that business, examined the quality of meat offered by both parties, and that offered by the lowest bidder was of superior quality. This is but one of many examples that might be cited. Our experience proves conclusively that the city can buy direct from the packing houses at as low or even a lower price than the small dealer throughout the city.

Other instances like the above might be detailed to an extent which would make this article too lengthy.

Carload prices are now paid for pipe delivered anywhere within the city limits, as against less-than-carload prices paid by the departments when they did the purchasing.

Adding machines, typewriters, incandescent carbon and tungsten lamps, office furniture, card indexes and numerous other items are now purchased at from 10 per cent to 25 per cent better discount than was formerly obtained.

The printing bill in 1908 amounted to \$8,676.88 for the 42 departments. Prior to the establishment of the Purchasing Department this printing had been given with comparatively little competition by the various department heads to the bidder from whom they believed they could get best results. It is not known that any over-charges were made by these printers, but it is certain that with the present system of drawing complete specifications, describing clearly the kind and weight of the paper, the style of binding and all other details, and of submitting these specifications to all of the bidders and of awarding the contracts to the lowest and best of them, there is a saving of more than 10 per cent.

One detail is still lacking in the general system which would help materially in accomplishing the purpose of securing the very lowest prices obtainable, and that is a general storeroom. There is at present a storeroom through which stationery supplies are distributed, and this has been so successful that a general storeroom should be established, where it would be possible to buy in quantities and store such items as brooms, nails, shovels, sugar, soap, canned vegetables, fruit, etc.

The total cost of operating the department for the year 1908 was \$15,041.09, or a percentage of cost of operation to total disbursement of 0.89 per cent.

The success of the department so far has been possible only because it has been run strictly upon a business basis, without interference along political lines. Its continued success depends upon an insistence that this condition prevail. Price and quality should be the only considerations in making purchases, and the city can derive no benefit unless this policy is pursued by the purchasing agent, and backed up absolutely by the chief executive of the municipality.

DISINFECTION OF SEWAGE

Modern Rapid Sewage Treatment Inefficient in Bacterial Removal—Disinfection for Destroying Bacteria—Materials, Methods and Costs—Electrolytic Methods

By EARLE B. PHELPS

Paper before the American Society Municipal Improvements

In former days the purification of sewage was commonly understood to mean the removal and final oxidation of practically all the contaminating matter present, including the germ life. The old slow sand-filter was relied upon to accomplish this end, and although, in the majority of cases, its efficiency is not at all times of the degree indicated, yet effluents can be produced under favorable conditions which approximate drinking-water standards. However desirable such results may be, the large amount of land required, about an acre for every thousand inhabitants, makes the price almost prohibitively excessive in the region of large cities. Therefore, the tendency of the times has been toward intensifying the natural process of purification to the end that more sewage may be treated upon a given area. Progress in this direction has been rapid and satisfactory, so that with a modern trickling filter the wastes of 20,000 persons can be adequately disposed of upon an acre of filter surface.

With the increased rate of treatment, however, there has come a consequent deterioration in quality. The removal of bacteria, in particular, has ceased to be one of the chief factors in sewage purification. To what extent pathogenic bacteria are removed by filters of coarse stone is a somewhat debated point at the present time, but it is the writer's belief, based upon many years of experimental study and the perusal of the available evidence, that the removal of pathogenic bacteria by modern processes of sewage disposal is at least not more rapid nor more efficient than that which is observed naturally in a polluted stream. In other words, the same natural processes are at work, and the conditions found in the purifying mechanisms have no especial detrimental effect upon the bacteria in question. This at least is the result of investigations upon the fate of non-pathogenic bacteria of certain specified types which have been studied most exhaustively. Reference is had particularly to the bacillus coli. It has been shown repeatedly that this organism is not destroyed in modern sewage disposal plants to an extent which would have any sanitary significance. It has further been shown under controllable experimental conditions that the resistance of this organism to unfavorable surroundings, to heat, to cold, to chemical poisons, and to simple storage in water, is not much greater, if any, than that of the typhoid bacillus. Therefore, in the absence of any direct evidence to the contrary, it is not only just, but quite necessary, to assume that the fate of the bacillus coli in the various processes of sewage purification is indicative of the fate of its more undesirable relative, the typhoid germ. In summing up the evidence in this matter as presented by English experience, Houston concluded that the biological processes at work in the filters are not strongly inimical, if hostile at all, to the vitality of pathogenic germs.

Granting, then, that these sewage filters present no material barrier against the passage of bacteria from the sewage to the stream, we are confronted by a still more perplexing and unsettled question, namely, the degree of purification which may reasonably and economically be demanded. Sewage purification in the complete sense previously described leaves little to be desired as far as results go; but partial purifications of one kind or another are possible also, and in many cases may satisfy the local requirements. In brief, we can remove suspended solids, which cause offensive deposits in streams unless the flow be always rapid; we can oxidize organic matter which will otherwise produce anaerobic or putrescible conditions in a stream unless also the final dilution be sufficiently great; or we can destroy pathogenic germs which might otherwise en-

danger water supplies or shellfish beds. Finally, we can combine any two or all three of these partial methods.

The adoption of a purification process fitted to the local requirements and going no further than these requirements demand, results in a two-fold good. Communities installing the works are saved unnecessary expense and more communities are finding it possible to purify their sewage, owing to the simplified processes now employed. An example has recently come to the writer's notice. A public institution secured an appropriation of \$18,000 for sewage disposal works. Plans and bids were called for and the lowest bid received called for a total expenditure of \$22,000 for septic tanks, special pumping apparatus and sand filters. This amount of money was not available, the appropriation lapsed and the work was dropped for a year. A special study of the local requirements showed that by no possibility could any physical nuisance occur below the outfall. The discharge was into tidal waters, the volume of water was great compared with the volume of sewage, and the flow was sufficiently rapid at all times to prevent sedimentation. Extensive oyster beds, however, would be affected by the discharge of crude sewage at this point; furthermore, any large, floating particles would be unsightly. A system involving screening, partial clarification and complete disinfection has been designed for this institution. This system meets the local requirements far better than the first plan proposed, since special care is taken to prevent the discharge of bacteria prejudicial to the oyster beds. The total cost, including the capitalization of the extra operating expenses of the disinfecting process, will not exceed \$5,000.

This possibility of adjusting the character of the purification works to its requirements not only resulted in the saving of public funds, but, what is of vastly more importance, made it possible to put in disposal works which might otherwise never have been installed.

This question of the desirability of disinfecting sewage and effluents has been gone into at some length because, strange as it may appear, we are better agreed at present on the methods of disinfection than we are upon its proper rôle in sewage purification work. The ever-growing necessity for some kind of sewage treatment, particularly in our larger cities, has led to the development of less and less perfect processes of treatment and the question of sewage disposal has curiously become less and less a matter of sanitation. The prevention of physical nuisances in our streams is now held to be all that is necessary or at least all that is feasible. With the definite knowledge of new processes which make it possible at a reasonable cost to provide bacterial as well as organic and physical purification, the question is bound to arise: "To what extent shall we retrace our steps and again regard bacterial removal as one of the factors of the problem?" The problem is further complicated, as it always has been, by the fact that, while the purification of water directly benefits those who pay for it, sewage purification affects directly only those communities situated further down on the stream. It is, therefore, fortunate that all these matters are being placed more and more in the hands of central State bodies, boards or commissioners of health, who, looking upon the questions involved from the broad viewpoint of public policy, are best enabled to decide to what extent the disposal of sewage shall be carried out. This decision must be rendered upon the broadest of sanitary and economic considerations, and the self-interest of the individual communities must not be allowed to interfere with the general policies laid down by these boards for the public good. More and more, therefore, as the powers and activity of such boards increase throughout the various States, is the opinion growing that our drinking-water streams should be protected, not only from gross physical nuisances, but from serious bacterial infections. It often happens that while typhoid fever is raging in one community, the next community downstream has between its drinking water and the necessarily infected waters of the river, only a poor water filter, oftentimes broken down or greatly overworked. The margin of safety here is too small. It is manifestly unjust to throw upon any water filter the burden

of purifying a stream which is being seriously and wilfully polluted and infected by others. This is the position which is being taken by the more advanced of our States, as shown by legislative enactments. It is the position universal among the best sanitarians of the day, and, finally, it is the position dictated by ordinary common sense and by an ordinary spirit of engineering caution. Therefore, it does not seem that one will be charged with undue enthusiasm who holds that, since it is now possible and perfectly feasible to prevent the discharge of pathogenic germs through the sewers of cities into drinking-water supplies of other communities or upon important shellfish areas, that such steps should be taken and will in the very near future be considered essential.

Let us consider now the methods by which disinfection may be brought about and the all-important matter of costs. Among the agents of disinfection, chemical and otherwise, which have from time to time been proposed, and many of which have been used in sewage work, the following may be mentioned: Heat, lime, acids, ozone, the various compounds of chlorine, including chlorine gas, hypochlorites, and electrolytic products, the salts of copper, manganates, permanganates, and various organic substances. In an earlier paper the writer has considered the historical development of sewage disinfection and has gone with some detail into the possibilities and the costs of the various agents mentioned. It will be sufficient for present purposes to state that all of these agents, save the chlorine compounds and the salts of copper, are prohibitively expensive, and that of the latter two, chlorine in the form of hypochlorites appears to be by far the most economical and satisfactory disinfecting agent. Early experiments with hypochlorites in both England and Germany indicated that very satisfactory results could be obtained on a practical scale. The costs, however, of these processes were still too high for ordinary routine use as compared with the costs of other sewage disposal processes. Investigations made later in this country by the writer and others indicated that the high cost of the German results, in particular, was due to the excessively high standards of bacterial removal demanded. For example, in most of the experiments referred to it was thought to disinfect the sewage to such an extent that the bacillus coli would not be found in one liter of the disinfected water. Since this organism occurs in ordinary sewage in numbers ranging anywhere from 10,000 to 1,000,000 per cubic centimeter it is quite evident that the degree of purification called for in this case is far in advance of any practical requirements. Our own investigations show that it was comparatively easy to secure a reduction of total bacteria and of the bacillus coli amounting to from 95 per cent to 99 per cent, and that beyond this point excessive amounts of disinfectant were necessary. This phenomenon of the resistant minority, as Whipple terms it, is common to all kinds of sterilization, whether it be by heat, cold, light, chemicals or other means. It is, therefore, decidedly more practical to determine how far disinfection may be carried at a reasonable expenditure than to attempt the ideal complete sterilization. To put the case concretely, it might be found that the pathogenicity of an effluent could be reduced 96 per cent by the expenditure of a certain sum of money; 98 per cent by the expenditure of twice that sum, and 99 per cent by the expenditure of five times that sum. The first, or even the second, proposition might develop into a feasible plan, while the last might be prohibitively expensive. From the practical engineering point of view, therefore, it is plainly our duty to achieve 96 to 98 per cent reductions at reasonable working costs rather than to secure the ideal at prohibitive costs.

On this principle, therefore, it was determined to learn to what extent sewage filter effluents, and even crude sewage itself, could be purified at costs which were commensurate with the results and with the costs of other purification processes. For this purpose experiments were carried on at the sewage experiment station of the Massachusetts Institute of Technology for a period of over two years. Simultaneously with these investigations work was also under way on a practical scale at Red Bank, N. J., where 250,000 gallons per day of

septic effluent was treated. Also, through co-operation with the Sewerage Commission of the city of Baltimore, experiments extending over about one year were made at the experimental plant there. At Baltimore the effluent treated was from a septic tank-trickling filter system. It will not be necessary to go into the details of these various investigations, which have already been published in full by the United States Geological Survey, through whose financial aid they were made possible. In brief, it was found that the satisfactory disinfection of a trickling filter effluent which has been purified to a condition of non-putrescibility can be accomplished by the application of ordinary commercial bleaching powder in the proportion of three parts per million of available chlorine or approximately 75 pounds of bleaching powder per 1,000,000 gallons of effluent. The removal of bacteria possible in this way will average over 95 per cent, making a combined bacterial efficiency for the filter and the disinfection of between 98 and 99 per cent. The cost of such a process will range from \$1 to \$1.50 per 1,000,000 gallons, depending somewhat upon the size of the plant and somewhat upon the transportation charges on the bleaching powder. Effluents of higher degrees of purity can be disinfected at still lower costs. Five parts per million of available chlorine, or 125 pounds of bleaching powder per 1,000,000 gallons probably represents the maximum amount which would ever be required for the treatment of effluents of a poorer quality. The disinfection of crude sewage to the same final condition as that mentioned above, namely, the removal of over 98 per cent of its total bacteria, may be accomplished by the application of from five to ten parts per million of available chlorine, or from 125 to 250 pounds per 1,000,000 gallons of bleaching powder, the amount depending upon the character of the sewage. The cost will range correspondingly from \$1.50 to \$3.50 per 1,000,000 gallons.

The disinfection of septic sewage requires the application of from ten to fifteen parts per million of available chlorine, or of from 250 to 375 pounds of bleaching powder per 1,000,000 gallons. If no further purification is required than that given by the septic action and the disinfection, it will probably be found advantageous to reverse the processes, disinfecting the crude sewage before it enters the septic tank. The resulting development of ordinary bacteria within the tank is of no sanitary significance, and it is doubtless of some advantage in the subsequent purification of the organic matter in the stream to

processes have been developed, and a few have actually been installed. The claims of some of them are so ridiculous that the process disbars itself from scientific consideration. There seems to be something about such terms as "electrolytic" which appeals strongly to the layman, and this weakness on the part of local boards of public works has been played upon in many instances for the purpose of marketing certain patented processes of very dubious merit. At the same time there are electrolytic processes for the manufacture of chlorine which are undoubtedly successful, and, in fact, most of the bleaching powder which we use in this work is made by an electrolytic process at Niagara Falls. It happens, however, that chlorine is practically a by-product of the much more important alkali industry and that its price is consequently fixed at almost the cost of materials and freight. Granting to such a process free power and theoretical efficiencies, the cost of manufacture on a scale small enough for an ordinary sewage disposal plant would still be above the market price of bleaching powder. Therefore, one is not mistaken in stating that under present market conditions chlorine can be purchased much cheaper than it can be made even under the most favorable circumstances.

In conclusion, the following table of the total costs of operation, including interest on installation, is given. It is based upon the plant having the capacity of 5,000,000 gallons per day, the costs being per 1,000,000 gallons. In general, plants of a larger capacity could be run somewhat more economically, while on smaller plants the labor items would probably mount up somewhat faster. The costs, as will be noted, all refer to the amount of available chlorine in parts per million found necessary. In this way the table can be applied to any situation after it has been determined by experiment how much available chlorine will be required to produce the desired degree of disinfection. In a rough way, the figures already given, namely, from two to five parts for filter effluents of varying quality; from five to ten parts for sewages, and from ten to fifteen or more parts for septic sewages, may be used. A special column is given to the matter of storage tanks, since in many locations this item would not be an extra charge, existing tanks being used. As to the application of results obtained in one place to conditions met in another, it may be said that the reactions involved are particularly free from interference on the part of the mineral constituents of sewage, a condition which has not been found in the case of copper. Thus

DISINFECTION OF SEWAGE AND EFFLUENT

Av. Cl. Parts per Million	Bleach Pounds Per Million Gallons (Approximate)	Time of Contact Hours	COST PER MILLION GALLONS					
			FIXED			OPERATING		
			Storage Tanks	Other Fixed Charges	Bleaching Powder	Labor	Power	Total
1.....	25	5.0	\$0.10	\$0.02	\$0.30	\$0.10	.....	\$0.52
2.....	50	2.5	.05	.04	.60	.10	.....	.79
3.....	75	1.6	.04	.05	.90	.10	\$0.02	1.11
4.....	100	1.2	.03	.07	1.20	.10	.02	1.42
5.....	125	0.8	.03	.08	1.50	.10	.03	1.74
10.....	250	0.5	.02	.16	3.00	.15	.06	3.39
15.....	375	0.5	.02	.24	4.50	.20	.09	5.05

discharge an effluent rich in bacteria which assist in that purification. The removal of the bacillus coli in all of the above cases is usually somewhat more complete than that of the total bacteria cited.

Under the conditions of a laboratory experiment, the results of hypochlorite disinfection on both the colon and the typhoid bacilli, carried out under exactly the same conditions, were identical. It seems reasonable, therefore, to assume that the viability of the typhoid germ under working conditions in practical sewage disinfection is at least no greater than that of the colon bacillus, and, therefore, no greater than that of the sewage bacteria as a whole. Consequently, the disinfection results obtained with the total bacteria may, in the case of chlorine disinfection at least, be referred directly to the typhoid bacillus with assurances of reasonable accuracy and of some margin of safety.

In the investigations made, the subject of electrolytic processes of treatment received considerable attention. Many such

there is reason to believe that the results given here are of practically universal applicability.

SANITARY SURVEY OF LAKE MICHIGAN

A SANITARY survey of the waters of Lake Michigan along the North Shore, from Evanston to Waukegan is now in progress under the direction of the North Shore Sanitary Association. The laboratories of the Chicago Health Department are making the analyses.

Lines of buoys have been set out in the lake, two to five miles from shore, opposite the various pumping stations and sewer outfalls along the shore. Daily samples will be taken during the next three or four weeks for the purpose of ascertaining the extent of pollution of Lake Michigan at these points and to determine the distance from shore to which water supply intakes must be extended to insure a pure water supply.

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It is also desired that the facilities furnished by the reference library in this office should be widely known and freely used by those interested in municipal affairs. Visitors will be welcomed and provided with conveniences for search, and inquiries by mail will be promptly dealt with.

DECEMBER 22, 1909

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Cleveland's Purchasing Department

We call special attention to the article on another page describing the work done by the Purchasing Department of the city of Cleveland. A few other cities have similar departments or officials for this purpose, but we believe no others have so well organized a department or one which performs such a large percentage of the purchasing for the city as has Cleveland. As suggested last week, it would seem as though a still further service might be performed by such a department or official, that of effecting the exchange, between departments, of materials which are either waste or by-products of the department, or which could be furnished more cheaply by a city department than it could be purchased outside. However adaptable the details of the operation of the Cleveland department may be to other cities, it would seem as though the general principle were worthy of serious consideration by every city whose yearly purchases run into five figures or more.

The Selection of Materials

PROBABLY there is no service required of an engineer that is more exacting or more valuable to his clients than the exercise of his judgment in the selection of materials. A plan may be carefully studied and a design produced that is beyond criticism as far as location, form, capacity and the relation of its component parts are concerned, but if an unwise choice is made of materials of construction the results are inevitably disappointing if not absolutely disastrous. Perhaps there was a time when temporary materials or materials that did not possess in the highest degree the essential requirements of the particular application, were justified; where practical considerations, such as first cost, availability, the patronizing of home industry, etc., might have outweighed everything else. But that time has now passed in this country. We believe that under present conditions there can be no justification or excuse for using any but those materials which fulfill in the highest measure the exact requirements of each particular case. If two materials, equally available, are suggested for use in certain work, one of which has only been found satisfactory under certain conditions, which may or may not be unusual, and the other has been found uniformly successful when used under proper and normal conditions, no argument would appear sufficiently potent to induce the adoption of the first by anyone of knowledge and experience.

Of course cost is ordinarily a consideration, and generally—although not always—the better material is the more costly to install. But there are other considerations of so much greater importance than first cost, considerations involving perhaps the safety and health of a community, that to weigh cost against them seems almost as sordid as to take competitive bids for the performance of a surgical operation on which life depends.

An engineer or city official on whom falls the responsibility of selecting the materials and equipment for a municipality's improvements can ill afford to act without the fullest information obtainable on the subjects in hand before him. After deciding in his own mind the question of relative merit, he will wisely endure any criticism or reproach incident to his selection of the best material obtainable for each specific purpose, relying on the future to demonstrate the quality of his judgment, and the fidelity of his service to the city which employs him.

Creosote Treatment for Algae

The following letter is self-explanatory. In order that it may meet the eyes of all who read the original article we give it the same title and position.

Editor MUNICIPAL JOURNAL AND ENGINEER,
New York City.

DEAR SIR:

Referring to your article in the issue of December 8, entitled Creosote Treatment for Algae, I desire to make a correction.

In looking up my letter, I find that a typographical error made me state that I used 100 gallons of creosote to each acre of surface. I regret very much that I made this mistake, as such a quantity would make the treatment not inexpensive, and should anyone use that much they would have a troublesome after effect.

I should have stated that we used one gallon per acre, or a total of 23 gallons for one treatment. In the season of 1909 we used a total of 100 gallons, total cost of creosote of \$20. You will therefore see that the cost of treatment for the one time is 20 to 25 cents per acre, instead of \$20 to \$25, and that the total cost per acre per season is only about \$1.

I would appreciate it if you would put this correction into the hands of as many as you can, so as to prevent any one who might try this remedy from getting an excessive treatment which might be injurious to them.

Very truly yours,

WM. F. WILCOX.

MERIDIAN, MISS., December 13, 1909.

NEWS OF THE MUNICIPALITIES

Current Subjects of General Interest, Under Consideration by City Councils and Department Heads—Streets, Water Works, Lighting and Sanitary Matters—Police and Fire Items—Government and Finance

ROADS AND PAVEMENTS

Atlanta Breaks Its Paving Record

Atlanta, Ga.—With nearly 20 miles of street paving for the year 1909, as compared with 16 miles in 1908, Atlanta has for the second time in succession broken its paving record. This is the first year that street paving has been done under the new assessment plan. H. L. Collier, Commissioner of Public Works, states that under this plan more work has been passed than can be done this year.

Best of State Road Work

Augusta, Me.—“Some of the best State roads that have come under my notice are being built in Maine this year,” says Paul D. Sargent, State Commissioner of Highways. “Some of the best work has been done in the cities of Hallowsell, Lewiston, Westbrook and Portland, the road built in each of these places being of bituminous macadam, which, while it costs a little more than roads built of other materials, makes an ideal highway and one that is durable. This type of macadam is becoming more and more popular year by year, and is destined to be the material above all others in the work of road building.”

Highway Engineers for the South

Columbia, S. C.—Commissioner E. J. Watson of the South Carolina Department of Agriculture, Immigration and Commerce, is urging the creation of the office of State Highway Engineer and has found favor for the plan among County Supervisors. Commissioner Watson tells of the widespread public sentiment in the State for the improvement of public highways, enlarges upon the economic advantages, especially to the farmers, of good roads, and insists that the Engineer is as necessary for a properly constructed system of public highways as he is for the construction of railroads. County Engineers are also a rarity in the South, although there is a necessity for their services in the construction of good roads.

New Road Law for Ohio

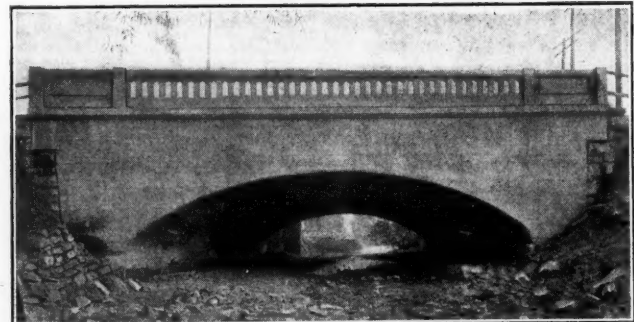
Columbus, O.—Highway Commissioner J. C. Wonders is at work preparing a bill which will establish a new system of management and control in the construction and maintenance of both county and State roads. John A. Alburn, second assistant Attorney-General, is doing the legal part of the work. As far as can be done under present constitutional limitations it is proposed to make the Ohio law conform with that of New York. County officials will be obliged to follow rules and regulations laid down by the State Department. Road building will be placed in the hands of county engineers, these officials to report regularly and receive suggestions from the State Department. In townships road superintendents may be elected. It is also proposed to bring bridge construction under the general supervision of the Highway Commissioner.

Sand Boxes Placed on Hillsides

Duluth, Minn.—President James Preston of the Board of Public Works has had sand boxes placed in strategic places on the hillsides in different parts of the city. When the walks get slippery and dangerous the sand will be ready for immediate use. The sand used is first allowed to freeze and then is broken up. This is said to prevent it from freezing again in a solid mass.

Ordinance to Regulate Cutting of Pavements

Streator, Ill.—Mayor P. J. Lucey is advocating the passage of an ordinance to compel the deposit of a sum of money with the city by property owners before the pavement in front of their property can be torn up. The Street Commissioner will then take charge of the work of filling in the excavation after the pipes have been laid and will also relay the pavement.



Courtesy Philadelphia Record

CONCRETE BRIDGE, DAUPHIN COUNTY, PA.

Type of Concrete Bridge to Replace Use of Steel

Harrisburg, Pa.—The accompanying picture is that of the State street bridge over Paxton Creek, Dauphin County, and is one of a type approved by the State Highway Commission, which will be built throughout the county, the city sharing the cost. The concrete bridge costs a little more than the ordinary iron bridge, but it is believed will cost less for maintenance.

Turns Avenue to Save Historic Spy Oak

New York, N. Y.—Considerable agitation has been started in the Bronx by the report that the old Spy Oak, in Pelham Road, above old West Chester village, was in danger of destruction. With the extension of the new line of Westchester avenue northward toward Pelham Bay Park it was found that this forest monarch, the scene of the stirring hanging of a British spy by the American troops, would soon be a thing of the past. The principal of the Morris High School wrote to John F. Murray, President of the Bronx, urging that steps be taken to preserve the relic. Mr. Murray had his Chief Engineer prepare plans for a small new park, almost an acre in size, to contain the Spy Oak and thus preserve it. The proposed line of Westchester avenue will be deflected toward the east and will not interfere with the giant trunk.

Hard Surface for All Street Work

Portland, Ore.—The Executive Board has recently rejected several bids for gravel and macadam pavements, and has asked Council to start no more proceedings for such improvements except where there are peculiar conditions that will not warrant the laying of a hard surface pavement. The Board has also issued an order that whenever hard-surface pavements are torn up to lay water, gas or wire conduits, the excavations shall be filled with sand or gravel instead of mud.

Money Is Saved to City by Its Asphalt Plant

San Francisco, Cal.—A report has been submitted to the City Engineer by J. R. Price, Assistant City Engineer, in charge of the municipal asphalt plant, showing the cost of its operation for the seven months beginning March 1 and ending September 30, 1909. The output of the plant for March was less than for any other month shown in the report, caused by the installation of an extra heating tank, which more than doubled the original capacity. The tables submitted with the report show that 1,931,396 square feet of pavement were laid during the seven months, the total cost of labor and material being \$125,603.02, and the average cost per square foot 10.54 cents. The report says that under contract with the Barber Asphalt Company similar work cost on Market street 16½ cents per square foot. Had the work done in the seven months been done under contract, the report says, it would have cost the city \$196,580.34, the municipality having, therefore, saved \$70,977.32 in having its own plant and doing its own work.

SEWERAGE AND SANITATION

Board of Health Adopts Better System of Records

Cincinnati, O.—The Board of Health has adopted the recommendations made by the Bureau of Municipal Research for the simplification of the method of keeping records of contagious diseases. It is said that the new method, while involving greater detail, is not so cumbersome, and is far more complete than the present method.

Action for River Purification in Michigan

Grand Rapids, Mich.—Citizens of Wyoming Township, located on the Grand River, immediately below Grand Rapids, have taken legal proceedings to prevent that city from polluting the river with sewage. The immediate cause of the action was the decision of the Grand Rapids Board of Health to use the river as a dumping place for night soil. An injunction was filed to prevent the city from using the river at all in the disposal of its sewage and a temporary injunction to prevent the use of an improvised night soil dump. The temporary injunction has been denied. Members of the Interstate Pure Water Commission who seek the purification of the waters of the Great Lakes are interested in the ultimate outcome of the action.

Sewage System Imperfect

Indianapolis, Ind.—The statement in a report by Surgeon-General George H. Torney of the United States Army that the sewage disposal system at Fort Benjamin Harrison is defective has caused some concern in Indianapolis. The report says that while the contact filters perform their duty satisfactorily, the sand filter has failed, partly because of faulty construction and partly because it is overworked. While desirous of having conditions remedied in line with the work of river purification throughout the State, both State and city health officials say that there is no need for alarm in Indianapolis because no water for the city supply is taken from Fall Creek, into which the effluent from the fort is discharged.

Ample Time Allowed for Installation of Sewage Disposal

McKeesport, Pa.—McKeesport is to be given ample time in which to draw plans for a sewage disposal system and get ready for its installation. The date will be extended from time to time, provided the city shows good faith and makes some progress toward the desired end. This was the report brought from Harrisburg after a conference with Dr. Dixon by Mayor Arthur and City Engineer Smith. Dr. Dixon insists upon separate sewers for storm and sanitary drainage. This means the reconstruction of practically all of the present system, although the drains now in use may be used for one purpose or another. Permission to build new sewers or extensions of present drains will be granted whenever Engineer Smith can show State Engineer Snow that they can be used in connection with the intended disposal system.

Cleanliness a Requisite to Lunchroom License

Washington, D. C.—The inspection of the lunchrooms and cookshops of the city, made necessary by the recent decision of the District Commissioners that every public eating place must be licensed, is assuming the aspects of a crusade. Before a lunchroom, restaurant or cookshop can be licensed the Health Department must satisfy itself that it is sanitary, with particular attention paid to the manner in which dishes and cooking utensils are washed and handled. The present regulations require that running water must be used in the kitchen, it is said, and many cookshops are unable to comply in this manner, and it is regarded as quite possible that more than one chattering parlor will be closed. Dr. Woodward, District Health Officer, has the names and reports on a large number of eating houses which the inspectors believe should not be granted licenses, but he has not thought it advisable to make them public. His idea is that by educating the unclean cookshop and restaurant man he may be able to make a spotless cook of him.

Typhoid Epidemic at Wilmington, Del.

Wilmington, Del.—An epidemic of typhoid fever has been discovered in the Ninth Ward and the Health Department is investigating the water and milk supplies.

Tuberculosis Ordinance Passed

San Francisco, Cal.—An ordinance has been passed declaring tuberculosis a communicable disease and setting forth regulations for the guidance of physicians and their patients. The Health Officer is given unusual power. He may close up a place if his orders for sanitation and disinfection are not obeyed; he may punish a victim of the white plague for carelessness, and, if he deems it advisable, may forcibly remove a person from his home to such place as the Health Department may designate.

Old Shacks Condemned at National Capital

Washington, D. C.—The Board for the Condemnation of Insanitary Buildings has its eyes on one hundred shacks in Garfield and Hillside, across the Eastern Branch, which are said to be so far gone and so unfit for habitation that only complete demolition will satisfy the standards of sanitary living. The shacks are occupied almost entirely by colored families. Roy E. Haynes, Secretary to the Board, is sure that there will be no difficulty in carrying out the orders of the Board. The owners of the buildings realize that to carry out the regulations and repair the dwellings would cost more than it would to tear them down and build new houses.

WATER SUPPLY

Better Water Supply

Bradford, Pa.—This city's new pumping plant, built at a cost of \$10,000, has been finished, and its first test was satisfactory. The Water Commissioners are inclined to think that the new plant has settled the problem of the annual water famine. There are six drilled wells from which 2,000,000 gallons of water will be pumped daily. The power is generated by a 135-horsepower engine. The pumps were made in Buffalo. The city recently voted to expend about \$70,000 in rebuilding one of the large city reservoirs. It is expected that the work on that contract will be started in the spring. In connection with the completion of the new source of water supply comes the announcement from the Board of Fire Underwriters that a decrease in the insurance rates may be expected in the spring.

Carthage Out of Water

Carthage, Mo.—As a result of action taken by the Carthage Water Company, on petition granted by Federal Judge J. F. Phillips at Kansas City, the city of Carthage is without water. The pumping plant that has supplied water for the last 27 years is being dismantled and the municipal plant now in process of construction will not be completed until next April. Domestic consumers in one quarter of the city are obtaining water through mains connected with one pump of the new plant. The remainder of Carthage, including the entire business and the greater portion of the residence districts, is without water, either for domestic use or fire protection. Judge Phillips' action, granted on application of the company, prohibits the city from interfering with the dismantling of the pumping plant or removal of the mains. The pumps were stopped at 9 o'clock at night, and with 15,000 people entirely without water, the situation is serious. The plant has been dismantled to such an extent that it cannot again be operated for many days should a compromise be reached.

Three Propositions for Improved Water Supply

San Francisco, Cal.—Three alternative propositions regarding the water supply problem will be presented to the voters January 4. They are:

First Proposition—The acquisition and development of the Lake Eleanor project in conjunction with the Spring Valley system. Deductions would be made from the original plans of the City Engineer so that there would be no duplication of parts. This would give the city a supply of 95,000,000 gallons at a cost of \$58,000,000.

Second Proposition—The acquisition and development of the Lake Eleanor project in accordance with the plans of the City Engineer, to secure a supply of 60,000,000 gallons a day at a cost of \$45,000,000.

Third Proposition—The purchase of the Spring Valley Company plant and distributing system outright, giving a supply of 35,000,000 gallons daily at a cost of \$35,000,000, or a price to be agreed upon between the members of the city government and the Spring Valley Company.

Bondholders of Water Company Sue for Foreclosure

Jeffersonville, Ind.—The city water problem, which has defied successive administrations for more than ten years, may be brought to a head by an action filed in the Clark circuit court, in which foreclosure is asked on behalf of the bondholders, the amount involved being about \$250,000. The suit is brought in the name of the Union Safe Deposit and Trust Company, as trustee, against the Jeffersonville Water Supply Company and others who have a lien on the land whereon the company five years ago sunk wells, from which the greater part of the city water supply is now obtained, the river being used only to eke out when the demand is heavy, instead of exclusively, as formerly. The company has been in existence some twenty years, and ten years ago the city stopped payment of water rent to bring the company to task. Finally, under Mayor Burt, five years ago, the city consented to pay the \$25,000 then owing, on condition of certain modifications of the contract, and that the company should spend the money in improvements, which was done. The investment proved insufficient to do all that was required, and a suit brought by the city to compel performance of contract is now pending in the Floyd circuit court, and ready for trial. The company, according to the complaint, has defaulted interest on its bonds.

Owens Project Ahead of Schedule Time

Los Angeles, Cal.—Owens River water will be flowing through the 250 miles of aqueduct to Los Angeles by May 1, 1912, a year ahead of the scheduled time for completion. The great municipal water supply project will be accomplished for much less than the \$23,000,000 expenditure authorized by the people two years ago, according to William Mulholland, chief engineer of the aqueduct. Nearly 70 miles of the artificial waterway have been driven through the rock-bound natural fortresses of the Jawbone Mountain section. Three thousand men are now at work. A thousand more will be employed immediately.

East Grand Forks Filter Plant Defective

East Grand Forks, Minn.—The examination of the city filtering plant, which is being made under the direction of the State Board of Health, resulted in the announcement that no water should be used without its being boiled first. The announcement came as somewhat of a surprise, as it was believed that the filter was in perfect condition. Several changes are being made in the plant at the direction of the inspectors, and when these are brought about it is expected that the plant will deliver a pure supply of water.

Temporary Main Freezes

East McKeesport, Pa.—A 2-inch temporary water main laid on the surface of the ground for the purpose of supplying East McKeesport with water from the McKeesport system froze during a cold spell of weather, when the temperature fell to within a few degrees of zero, and burst in many places. A 6-inch line will now be laid underground, the temporary pipe being used in the meantime if it can be patched up.

City Increases Water Charges

Grand Forks, N. D.—If an ordinance which passed its first reading in Council becomes a city law the big consumers of water will be paying a bigger price for their supply within a short time. Under the provisions of the ordinance all water above 100,000 gallons will be charged for at the rate of 12 cents a thousand gallons, while at present the rate is a sliding one, going down as low as 8 cents when over 500,000 gallons is used, which amount is below the cost of pumping. No change is made in the charge to the small consumers of water.

Musk rats Make Trouble in City Water

Geneva, N. Y.—The presence of an unusual number of colon bacilli in the usually pure city water led to an investigation by the Board of Health. In one of the recent examinations a large amount of gas was found in the water taken from the ponds. Search of the pond disclosed a nest of muskrats into which some fifty frogs had been dragged. With the cleaning out of the nest the water resumed its normal condition.

Filtered Water as Christmas Gift

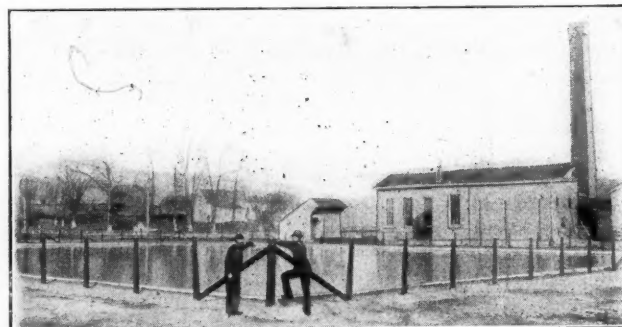
Wilmington, Del.—It is the intention of the Water Commissioners to present filtered water to the residents of Wilmington as a Christmas present. The new filter beds in Brandywine have been filled and the water will be in the filter beds for a fortnight to cleanse and test them and then it will be run through and distributed throughout the city. It is expected it will eliminate much of the typhoid fever, which, it is claimed, is due to the impurities now in the drinking water.

New Pumping Station for Government

Washington, D. C.—There is being erected in the Eastern Branch by the United States Government a large building, which will be used as a pumping station for the purpose of supplying the 18 big boilers of the Congressional power plant with water. To supply the boilers with water from the city service would cripple the water supply on Capitol Hill, and the new pumping station will take the water from the branch and force it through a 36-inch main to the big power house. The pumping station is constructed on a pile foundation over the water, but a cement foundation is to be constructed about the piles, giving the new building a firm base for the heavy engines, boilers and pumps to be placed in it.

Woodbury Has New Reservoir

Woodbury, N. J.—During the recent drought Woodbury has enjoyed an abundance of water of good quality. A new reservoir has just been finished at the works having a capacity of 1,500,000 gallons, about two or three times the daily supply. The original cost of the plant in 1886 was \$72,000, and a like amount has been spent on it since. Besides furnishing free water for 115 hydrants and for street sprinkling and flushing sewers the plant is a source of revenue. The receipts are \$14,000; expenses of operation and maintenance, \$6,000. There are \$42,000 bonds outstanding. Samuel E. Wilmer is superintendent of the plant.



Courtesy Philadelphia Record

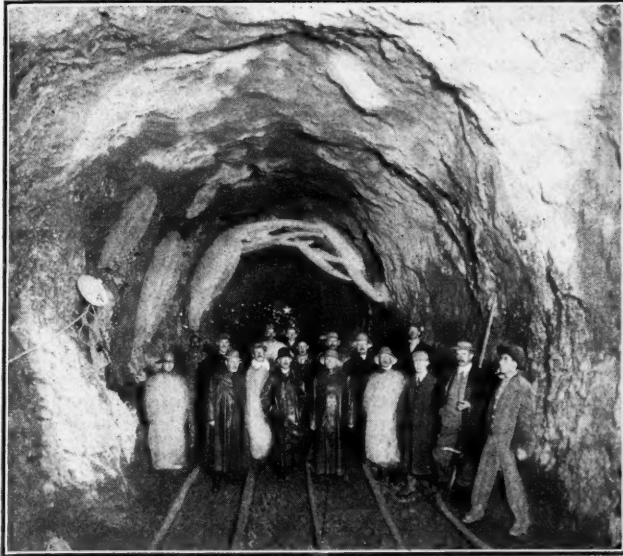
RESERVOIR AND PUMPING STATION, WOODBURY, N. J.

Merchantville Council Hears Gratifying Report

Merchantville, N. J.—M. B. Rudderow, Superintendent of the Water Company, read a report to Council showing a great improvement in service due to the construction of a new main and standpipe and the installation of an air compressor for cleaning the wells. The water now furnished is clear in nearly all respects except that of iron content, surpassing that of Camden. The average pressure maintained has been 38 pounds.

Sixty-Inch Water Main Breaks

Philadelphia, Pa.—A 60-inch water main at State road and Robbins avenue, Wissinoming, broke December 10 and for several hours manufacturing plants, railroads and residences were without water. The area affected extended from South street to Torresdale, east of Broad street. The escaping water tore up the road for 50 yards and washed a hole 15 feet deep. Chief Dunlap of the Water Bureau was unable to account for the break in the big main. He said the pipes had been in the ground for about five years. The one that burst was subject to a pressure of 85 pounds to the square inch, while another main of the same group of supply pipes was being subjected to a pressure of 105 pounds. The main that gave way withstood a pressure at the original test of 175 pounds to the inch.



Courtesy Pittsburgh Dispatch.

INSPECTING CATSKILL TUNNEL OF NEW YORK WATER SUPPLY

T. A. Gillespie, John A. Bense, President of the Board of Water Supply, and Mayor George B. McClellan, in raincoats, stand in the center, while J. Waldo Smith, Chief Engineer of the Board of Water Supply, is next to Mayor McClellan, and R. J. Gillespie is next to the end man on the extreme right.

Record for Tunnelling Beaten

New York, N. Y.—The record for rapid tunnel building was beaten last month in New York by the T. A. Gillespie Company, a prominent engineering and contracting firm of Pittsburgh, when a round tunnel, 18 feet 8 inches in diameter, with 10.31 cubic yards per lineal foot, was driven 488½ feet to the south from shaft No. 7 of the Rondout Siphon for the New York City water supply. The material excavated was Hudson River shale, and it was lifted to the surface through a shaft 514 feet deep. The work was completed in 29 days—an average of 16.85 lineal feet per day. This is the best American record of tunnel in rock. Up until this time the best record was made in the Elizabeth tunnel of the Los Angeles water supply—476 feet in a month, but it was only 12 feet in diameter, or less than five cubic yards per lineal foot.

Suburban Water Co. Pays Violation Penalty

Portsmouth, Va.—Admitting the violation charged in the complaint lodged against it, the Portsmouth Suburban Water Company has made settlement in the police court without defense, for doing business in Portsmouth minus the necessary license. Mayor Reed remitted the city's half of the \$20 fine, the customary penalty imposed for violation of the city tax bill, the remaining half going to the complaining witness, Substitute Patrolman Williams.

Water Will Be Cut Off

New Orleans, La.—No water will be pumped into the old mains of the Water Works Company after December 31, and persons who are then on the lines of the old water company will have their supply shut off, according to official announcement sent out by the Sewerage and Water Board. It means that patrons were given just nineteen days in which to get connections with the new water system.

Water Supply Shut Off

Danville, Ind.—Owing to a breakdown of the big pump at a time when the emergency pump was out of commission, the town was entirely without water. What water was in the standpipe was kept there for use in case of fire. The pump was started after being shut down 36 hours.

Artesian Water for Forney

Forney, Tex.—Artesian water has been secured at Forney. For several months the work of boring a deep well has been in progress. Flowing water was struck at a depth of 2035 feet and as a result there is great rejoicing among the citizens.

STREET LIGHTING AND POWER**May Set New Gas Standard**

Albany, N. Y.—The Public Service Commission probably has marked the beginning of a new era in the gas industry in this State. Notices have been sent to all gas companies of a conference to be held in Albany to consider the necessity for a new standard in measuring the quality of gas. The quality is now measured by the photometric standard, by which gas is judged for its illuminating power. This standard has been in use for years. The conference may lead to the adoption of a calorific standard.

Chemist Reports Gas Below Grade

Augusta, Ga.—City Chemist W. C. Lyle, in reporting on the candlepower of gas supplied by the Gas Light Company, says that there has been some improvement since his report made about six months ago. But at no time has the requirement of 18 candlepower been met, the test made ranging between 13.5 and 17.

Cost of Lights High

Gadsden, Ala.—An investigation on the part of the City Council has disclosed the fact that Gadsden is paying more for her lights than any city in Alabama. The present contract has yet a number of years to run, and it is not likely that any reduction can be secured unless the growth of the city calls for a general readjustment. The cost of an arc light in this city is \$84 per annum, and this is said to be nearly \$25 above the average cost of the service in the various cities of the State.

Grand Forks Will Be Well Lighted

Grand Forks, N. D.—Grand Forks will soon be one of the best lighted cities in the Northwest, as the Council has decided to equip the city in an admirable manner. It has provided for illumination of the streets of the entire business section of the city by the new system, to include eight ornamental posts bearing five tungsten lamps each for each block, and also for commercial lighting. The cost of additional equipment will reach \$35,000.

Giant Gas Tanks Explode

Hamburg, Germany.—A gas reservoir recently built by the city at a cost of \$3,500,000 and containing 7,000,000 cubic feet of gas burst recently and the gas it contained ignited. Seventeen persons were killed and 40 severely injured. The explosion shook the whole city, and a column of fire blazed hundreds of feet skyward, while huge flames played around the reservoir and neighboring structures. There was no possibility of the workmen escaping. Many of them were killed outright, and others were horribly burned. Three women attendants of the canteen are among the killed. The fire burned dangerously for three hours, during which many neighboring dwellings were ignited.

Minneapolis Gas Plant Value Fixed

Minneapolis, Minn.—Prof. W. D. Marks, the city's gas plant expert, estimates that \$3,626,270 would reproduce new the entire plant of the Minneapolis Gas Light Company, including value of real estate, works, holders, mains, service connections, meters, tools, office equipment, etc. Should the city take over this plant it ought not to pay this sum, as the depreciation on the plant would be 25 per cent or more.

After Electric Current Thieves

Tacoma, Wash.—The Light Department has begun a crusade against electric current thieves, of whom there are believed to be many. Warrants for arrests have already been sworn to by City Electrician F. H. Lauzon.

Water Gas for Wakefield

Wakefield, Mass.—The Wakefield Municipal Light Board has placed its order for engines, tanks and other apparatus for a water gas plant and expects to begin the manufacture of water gas about March 1. Increasing demands for gas for both illuminating and commercial purposes made a greater output necessary, and because of lack of room and large expense an extension of the present coal was works was deemed impracticable. The new plant will increase the daily output to 150,000 feet and will cost but \$7,000.

FIRE AND POLICE

Brakes for Winter Fire Apparatus

Bangor, Me.—Chief W. S. Mason has introduced an improvement in the winter equipment of fire apparatus. All the pumps will be provided with dog-brakes, which are said to work like a charm.

License Necessary to Carry Firearms

Lockport, N. Y.—Common Council has passed a penal ordinance which prohibits persons over 16 years of age from carrying upon their persons any pistol, revolver or other firearm without a written license from the Chief of Police, which shall cost \$1.50 per year in advance and may be revoked at the discretion of the Chief or renewed by him from time to time upon payment of the fee. These fees are to be added to the police pension fund. The Chief is required to keep a record of the name, age, residence and occupation of every person to whom he issues such permits. Violation of the ordinance, which will go into effect immediately, constitutes a misdemeanor, and fines may be imposed not to exceed \$50, or imprisonment not to exceed six months, or both.

Pass Cards in Place of Fire Badges

Newark, N. J.—The Board of Police Commissioners has adopted a pass card to be issued to newspapers for the admission of reporters within the police lines which are established at fires. The pass will be in the form of a card similar to usage in like cases in New York and other cities, and will be good for only one month. It will be so marked on its face and will also bear the name of the reporter and the signature of the city editor of the newspaper by which the holder of the card is employed. New cards will be supplied each month, in a series of colors, by Secretary Joseph M. Cox, of the Police Department.

Detective Headquarters to Be Open Nights

Buffalo, N. Y.—Chief Regan will propose to the Police Commissioners that the detective bureau at police headquarters be kept open all night. At present the bureau closes at 9 p. m. and the detective on watch goes to bed. When anything breaks loose he has to be aroused and then telephones the other headquarters detectives at their homes. Thus, when a crime occurs late at night valuable time is lost in getting the headquarters detectives on the job. Chief Regan would like to have two more men to do duty at headquarters all night. "If the headquarters office was kept open all night and we were allowed an automobile we would show results that would satisfy the people of Buffalo," said Chief Regan. "I would like to have things up to date."

Regulations on Storage of Gasoline

Plainfield, N. J.—The application of an automobile company for permission to install a 10,000-gallon tank of gasoline on its premises has caused a great deal of discussion in Council. While experts claim that if the tank is properly installed there is no danger, insurance men and others think it extremely objectionable. The following figures as to the amount of gasoline allowed to be stored in one building have been compiled by H. W. Marshall, president of the Board of Trade: New York, 275 gallons; Jersey City, 1,375 gallons; Louisville, 250 gallons; San Francisco, 1,200 gallons; Knoxville, 110 gallons; Baltimore, 275 gallons; Atlanta, 200 gallons.

Fire Alarm System in Good Condition

Reading, Pa.—Charles F. Maulen, inspector for the Game-well Fire Alarm Company, of New York, was in Reading making an inspection of the local fire alarm system. Speaking of the Reading system, Mr. Maulen said: "I find the police and fire telegraph systems of your city in first-class condition. I am pleased with the conditions of the lines, batteries and instruments. The boxes are especially in good shape and I certainly must commend your caretaker. The only thing I find missing with your system is a tape machine or punch register, which records on paper tape every fire alarm, other signals, wire troubles and test signals. This is a necessity and the city should have one." Mr. Maulen spoke highly of the work of Superintendent of Fire Alarms Mathias.

Pensions for Police and Firemen

Joliet, Ill.—An ordinance has been passed in accordance with an act of last year's Legislature establishing a pension fund for police and firemen who are disabled and for their widows. The sources of revenue will be: one per cent of the gross earnings of fire insurance companies not chartered under the laws of Illinois; one per cent of all city licenses; all fines for violation of fire ordinances, and one per cent of the monthly salaries of firemen.

Racine Firemen Subdue Dangerous Fire

Racine, Wis.—Racine firemen, assisted by men from Kenosha and Milwaukee, contended with a dangerous fire, which destroyed the Racine Manufacturing Company's buildings and threatened the J. I. Case plow works. The wind was blowing a gale of 30 miles an hour. Twenty-eight streams of water were turned on the fire. According to Chief Cape, the water pressure was good, though there was trouble for a few minutes with one frozen hydrant. A pressure of 125 pounds was maintained by the water works for three hours, and it is estimated that 3,500,000 gallons of water were used.

Gas in Fire Cistern Explodes

Topeka, Kan.—Gas in a fire cistern exploded when Engineer Robinson of the Fire Department, with lantern in hand, removed the cover preliminary to refilling it with water after cleaning. The gas came from a leak in a natural gas main and continued to burn until the cover was replaced. The explosion shook buildings for blocks around, and Robinson was thrown back on the pavement with his face badly burned.

GOVERNMENT AND FINANCE

Purchase of Supplies Discussed

Baltimore, Md.—Comptroller Harry F. Hooper has confirmed the estimate made to the Charter Revision Commission by Deputy Comptroller Freeman that about \$1,000,000 of supplies are annually purchased by the city departments without the jurisdiction of the Board of Awards. Comptroller Hooper would have the Charter Revision Commission reduce the amount that can be purchased without the approval of the Board to \$200. Some members of the Commission fear that the purchasing department might fall under control of practical politicians and become a losing, instead of a profitable, venture.

Decision Blocks Improvement Plans

Ventnor, N. J.—The decision of Judge Endicott in the Circuit Court at Mays Landing that Mayor S. Bartram Richards is a resident of Ventnor and properly acts as executive of the city, means that the elaborate improvements planned for the resort will not be made. The court also held that Councilman Harris, the Mayor's right-hand man, was properly seated, and thus the fight of the opposition to these officials fails, unless better success is had on appeal to a high court, an action which has now been determined upon. By his victory Mayor Richards keeps control of the city of Ventnor and so will still be able to block all efforts to increase the bonded debt of the town beyond a reasonable limit. Mayor Richards spends his winters in Philadelphia, and it was charged that he was thus a citizen of another State.

Decision on Salaries Under Payne Law

Columbus, O.—Salaries of Directors of Public Safety and Public Service may be changed during their terms of office, either increased or decreased, by the City Council. This is the opinion of Attorney-General Denman, given to the State Bureau of Accounting. The Bureau put the question to the Attorney-General, whether the present Council has power to fix salaries. Such action is not final, however, as the Council which takes office January 1, 1910, may at any time increase or diminish the same.

Commission Government for Oklahoma City

Oklahoma City, Okla.—Freeholders have been elected by large majorities from each ward of the city empowered to prepare a new charter incorporating the principles of the commission form of government.

Maximum and Minimum Wage Scheme Proposed

Pittsburg, Pa.—The Salary Revision Committee of Council is considering two proposals for economy in the city's executive departments during times when the revenues are reduced. One is to reduce salaries according to a fixed percentage. The other is to fix the compensation for each position at a maximum and minimum wage scale, as, for instance, at from \$90 to \$100 a month. The propositions now under consideration resulted from the deficit of about \$300,000, which, Comptroller Morrow says, threatens the city treasury. Governed by ordinances authorizing unadjustable compensations and civil service laws which make no provisions for deficits, the departments have found it hard to economize.

Bureau of Statistics Proposed for Omaha

Omaha, Neb.—Councilman Sheldon has introduced a resolution in Council providing that steps be taken to establish a bureau of municipal research and statistical information, with a chief statistician in charge at a salary of \$250 a month.

Economies Necessary to Pay Salaries

Terre Haute, Ind.—The City Council has turned down Mayor James Lyons's request for expense money for his delegation to the Rivers and Harbors Congress at Washington, \$4,000 for an automobile fire engine and \$20,000 for a site which he said could be used for a new municipal building. At the same meeting the Council increased the salary of the County Treasurer, acting as City Treasurer, from \$1,000 to \$3,000, and that of Councilmen from \$150 to \$200 a year.

Wants Index of Laws

Washington, D. C.—Dr. William Tindall, Secretary to the Board of Commissioners, has asked in his annual report that an index of the laws relating to the District of Columbia be published. He says that it is needed badly by the officers of the District in the administration of their duties. He also recommends that the police regulations should be published in new editions every two years. In addition to certain changes in the manner of getting up the annual estimates, Dr. Tindall recommends a glossary for reference by the public, showing the duties of the several departments of the District Government.

STREET CLEANING AND REFUSE DISPOSAL

Waste Paper Ordinance to Be Rigidly Enforced

Portsmouth, Va.—Mayor Reed intends to enforce the waste paper ordinance rigidly in order to bring about a cleaner appearance of the streets. The police have been instructed to exercise special vigilance toward detecting persons who throw paper into the street. These violators are to be summoned before the Mayor. Receptacles are provided at convenient street corners for deposit of waste paper.

Higher Standards of Street Cleaning

Youngstown, O.—The appropriation for street cleaning purposes for 1910 will be increased from \$30,000 to \$40,000 or \$50,000, according to Lionel Evans of the Board of Service, in order that the condition of the streets may compare favorably with that of any other city. Now there are six flushing machines all kept in the city barn. In order to save the loss in time in going to work, the number will be increased to 10, and they will be distributed among four stations in different parts of the city. The number of laborers will be increased from 25 to 50 or 75, so that more streets and alleys may be cleaned and the present trouble regarding rubbish blowing from an uncleaned street to a clean one avoided.

Would Reduce Maximum Area Cleaned per Man

Washington, D. C.—In their annual report to Congress, the Commissioners recommend that the present cost limitation of 19 cents per 1000 square yards be increased to not less than 21 cents per 1000 square yards, so that the surface area assigned to each man may be decreased from 10,000 square yards to 8000 square yards, the maximum amount which ought to be assigned to each laborer.

Good Reason for Unclean Streets

Newark, N. J.—Replying to criticisms regarding the unclean condition of the streets, Chairman Denman of the Street Committee of the Board of Works outlined the workings of this branch of the city government and gave a brief sketch of its history. A few years ago only \$75,000 was allowed for street cleaning, and conditions were such that complaints were made by the Board of Trade and others. It was estimated that \$1,000 a day would keep the streets up to the standard desired. Accordingly \$350,000 was appropriated for several years. The streets were models of cleanliness. Visiting officials from other cities frequently said Newark was the cleanest city in the matter of streets they had ever seen. This year a cut of \$30,000 was made in the appropriation. It was determined to keep up to former standards of cleanliness during the summer months. Now the appropriation is going out, laborers and foremen have been laid off or worked on part time, and the unclean condition of streets is the result.

New Proposition Regarding Snow Contract

New York, N. Y.—Commissioner William H. Edwards of the Street Cleaning Department has a plan for paying for the removal of snow which is different from any yet suggested by those in favor of paying by the area covered instead of by the number of loads carted away. He has inserted a shrinkage clause, which provides that contractors shall be paid for one-third of the actual snowfall. This is on the assumption that two-thirds of the snow will melt before it can be removed. Snow which has been piled up will not melt so fast, so the Commissioner suggests that the shrinkage allowed on that be only 25 per cent, the city paying for three-fourths of the piles taken away by the contractors.

RAPID TRANSIT

Voters Limit Franchise

Kansas City, Mo.—The proposition to extend the franchise of the Metropolitan Street Car Company, which now holds the traction rights of the city up to 1925, for a period of 26 years—or 42 years from the present—was defeated at a special election December 16 by a majority of 7091. This was the first election ever held here under the referendum law.

Chicago Subway Situation Clearing

Chicago, Ill.—Chicago's municipal subway prospects seem much brighter in consequence of Governor Deneen's incorporation of the question in his call for a special session of the Legislature. While it is believed by the city's traction experts that the city now has this authority, three cases are now pending in the courts calling it in question. New legislation would clear the objections away at once. The city has more than \$8,000,000 in the fund formed by the profits of the street railways as a result of the traction ordinance, which would be available at once for construction.

Cost of Transportation Per Passenger 3.4 Cents

Detroit, Mich.—Three and four-tenths cents per passenger, the equivalent of 7 1-3 tickets for a quarter, is the actual cost of street railway service in Detroit, says a report of a subcommittee of the citizens' committee of 50 which has been investigating the local traction question for a year. The chairman is Richard P. Joy, formerly City Comptroller.

Brighter Lights in Gotham Cars

New York, N. Y.—The Public Service Commission has adopted an order requiring the Interborough Subway Company to install 16-candlepower electric lights in all of its subway and elevated cars, instead of the 10-candlepower lamps used at present. The order is to go into effect by December 31.

Will Not Enter City Except Under Perpetual Franchise

Oswego, N. Y.—President Beebe of the Syracuse, Lake Shore & Northern Railroad Company has informed Mayor Smith that the trolley company will not enter Oswego unless granted a perpetual franchise.

MISCELLANEOUS

Railroad Would Move; Town Objects

Mena, Ark.—The Kansas City Southern Railroad has secured a temporary injunction order at Fort Smith against the entire town of Mena, its citizens and those residing near the city, restraining them from interfering with the railway. The suit is the opening gun in a battle on the part of the railroad company to remove its shops from Mena against the protests of the city.

Offer to Industries by Grafton

Grafton, W. Va.—A novel feature of the work of the Grafton Board of Trade is the erection of four large signboards at each of the four railroad entrances to this town. On each of these boards will be displayed in large lettering the fact that Grafton will offer free factory sites to concerns that will build their plants there, and in addition that each plant will be exempt from taxation for five years.

Plan to Encourage Manufacturing

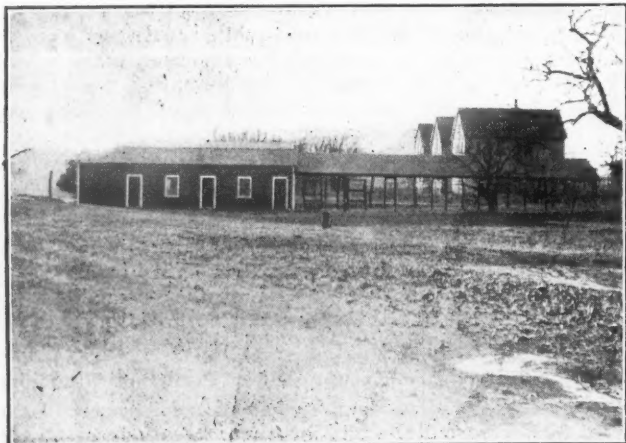
Wyandotte, Mich.—The Common Council has a plan to offer inducements to manufacturing concerns. The city erects factory buildings and permits concerns to occupy them in consideration for a stipulated weekly payroll. If at the end of an agreed period the firm has fulfilled its contracts the buildings become its property. The Council is at present erecting factory buildings for the Detroit Brass and Fitting Company. When this work is nearly finished the City Clerk will call for bids for the erection of a factory for the San Telmo Cigar Company.

Village Cwns Park Fifty Times Its Size

Mentha, Mich.—Though the village of Mentha, near Kalamazoo, occupies but an acre of ground, it will soon have a 50-acre park, the gift of A. M. Todd, a prominent farmer. The proposed park is a fine level tract, and will be fitted as a picnic and playground.

One of Haverhill's Playgrounds Completed

Haverhill, Mass.—The Margin street playground, the first to be established under the State law, has been completed at a cost of \$4,000—\$2,500 for the site and \$1,500 for equipment. The buildings, situated on the west end of the grounds, contain a tool house, boys' and girls' lavatories and a shed which will harbor children when it is deemed too hot for them to be playing under the blazing sun. The principal building, containing the lavatory, is divided into three compartments. It is well lighted by a glass skylight, which may also be used for ventilating purposes, it being operated by a shaft from an enclosed room in the center, to be occupied only by the caretaker. In fact, the caretaker is able to control the entire playground from this "pit," so-called, which cannot be entered by the children. It has a cement floor and contains the plumbing fixtures, all of which are open and can be repaired at a moment's notice. The ventilating system is controlled by a single wheel, carrying out the idea of simplicity. There is also attached a room in which a steam boiler may be later supplied if the Park Board decides to use the lavatories in cool weather.



Courtesy Haverhill Gazette

TYPE OF NEW CITY PLAYGROUND, HAVERHILL, MASS.

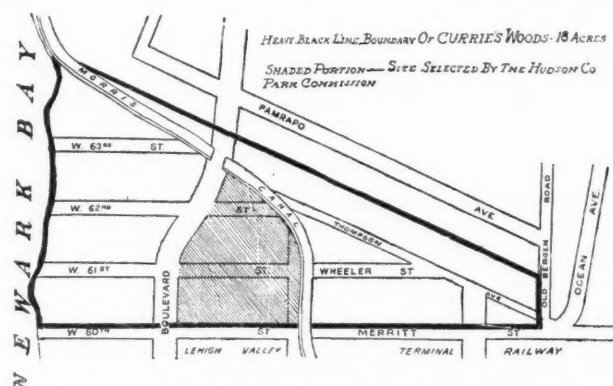


Courtesy Jersey City Journal

CURRIE'S WOODS—A HUDSON COUNTY PARK

Want All of Woods for Park

Jersey City, N. J.—Citizens are pleased at the action of the Hudson County Park Commission because they have taken six acres of Currie's woods bordering on the canal for a part of the park system, and they are displeased because the Commission has not taken the whole area of the woods which run down to Newark Bay, and are considered as more nearly resembling their original condition than any other equal area in the county. Members of the Greenville-Bayonne County Park Association, the Seventh Ward Improvement Association and others will continue their fight for the preservation of the whole of the wooded tract as a park.



PLAN OF CURRIE'S WOODS, SHOWING DESIRED EXTENSION

Would Regulate the Use of Skates

Washington, D. C.—Children on skates are a source of no small worry to the Police Department, and Major Richard Sylvester has suggested that a regulation might be framed treating roller skates as vehicles for the transportation of persons to the end that the use of skates may be confined to the roadways.

Regulation of Loan Agencies

Washington, D. C.—Commissioner H. L. West has drawn up a bill for presentation to Congress regulating the loan business. It would fix the highest rate of interest on remedial loans at 2 per cent a month, with no additional extra charges or fees. To engage in the loan business where a greater rate of interest than 6 per cent a year is charged the person or firm would have to take out a license costing \$100. Accurate accounts of all transactions would have to be kept and would be subject to inspection. Aggrieved borrowers would have the privilege of making complaints to the Commissioners and having them investigated.

Tree Ordinance for Oakland, Cal.

Oakland, Cal.—An ordinance has been passed placing all the trees on the streets in charge of the Park Commission. It is now the intention of the Commission to have a conference with light and telephone companies and try to agree on a plan to prevent the further destruction of trees by wires and gas mains. James P. Edoff, of the Park Commission, says that there are 3,000 dead trees in the city and many thousand others unskillfully trimmed, making the streets unattractive.

Japanese Cherry Trees for Potomac Park

Washington, D. C.—Two thousand Japanese cherry trees, presented by the city of Tokio to Washington, have arrived in Seattle and will be forwarded at once. Next spring they will be planted along Potomac Drive, which skirts the river for a distance of a mile and a half. The remainder are to be planted in clusters in the other parks.

LEGAL NEWS

A Summary and Notes of Recent Decisions—Rulings of Interest to Municipalities**Bi-partisan Commissioners—Validity of Statute**

McCarter, Attorney-General, vs. McKelvey et al.—Same vs. Hopson et al.—Same vs. Berdan et al.—Laws of 1907, which are made applicable to cities containing from 100,000 to 200,000 inhabitants, and authorize the Mayor to appoint boards of four members who are, in effect, vested with all important governmental powers and duties previously exercised by any Board of Aldermen or Common Council, do not violate the Constitution, prohibiting any private, local or special law regulating the internal affairs of cities or appointing local officers to regulate municipal affairs; the Constitution not prohibiting the Legislature from classifying cities according to population for regulating their internal affairs when population has a reasonable relation to the subject matter of the statute, and the classification by population is reasonably adopted to the purpose of the act in question. Laws of 1907, authorizing the Mayors of cities of a certain size to appoint boards of four members, no more than two of whom shall be of the same political party, and vesting them with certain governmental powers, do not impose any political qualifications upon the right to hold office, or prohibit members of any party from holding such office, but simply limit the representation of any party, and are constitutional, even if the spirit of the Constitution prohibits the imposing of political qualifications upon the right to hold office.—Supreme Court of New Jersey, 74 A. R., 316.

Time for Elections by Council

Watson vs. Mayor, etc., of City of New Brunswick et al.—Where a statute provides that an appointment to an office shall be made "at the first stated meeting after the passage of the ordinance" creating the office, an appointment thereto made at an adjourned session of the meeting whereat the ordinance was passed over the veto of the Mayor is not a compliance with the statute, since such adjourned meeting is but a continuance of the regular or stated meeting.—Supreme Court of New Jersey, 74 A. R., 301.

Borough Council—Filling Vacancy

Field vs. Soffe.—Under the borough act of 1897 an appointment to fill a vacancy in the Borough Council must be confirmed by the vote of the majority of the whole Council. This requirement is not affected by the act of April 9, 1908.—Supreme Court of New Jersey, 74 A. R., 265.

Defective Streets—Contributory Negligence

City of Louisville vs. Tompkins.—That plaintiff, who was seated in a wagon during a severe rainstorm, failed to observe a paving stone with which the street was obstructed which came in contact with the wagon wheel and threw plaintiff to the ground, did not constitute contributory negligence as a matter of law.—Court of Appeals of Kentucky, 122 S. W. R., 175.

Regulating Dancing Schools

Conley vs. City of Buffalo.—A policeman called on plaintiff at his dancing school, requested to see his city license, and, on being informed that he had none, told plaintiff to go to the Mayor's office and procure a license, for which he paid \$25. Plaintiff was not told that he must stop running the school or he would be arrested, unless he procured a license; nor was anything said as to the consequences of his failure to obtain it. Held, that the payment was not the result of duress, but was voluntary, and therefore not recoverable, even though the requirement was invalid. Where a city was authorized to enact any ordinance deemed expedient for the city's good government and the preservation of peace and good order, the suppression of vice, and preservation of health, an ordinance regulating dancing schools, and requiring a license for the operation thereof, was authorized.—Supreme Court of New York, 119 N. Y. S., 87.

Paving Contract—Guarantee—Liability

Cameron-Hawn Realty Company vs. City of Albany.—Where a company contracted with a city to furnish material and labor necessary to construct a pavement and to keep the work in good repair for two years, the contract being prepared by the city and the work being done under its superintendence, in conformity with its plans and specifications, and the material to be used being prescribed by the city, the company was not liable, after the city's acceptance of the work, for failure to keep the pavement in repair for two years, where its defective condition resulted from the defective plan and method of construction adopted by the city, under which a good pavement could not be constructed. Where a contractor furnished materials and executed work according to the city's plans and specifications, it was the duty of the City Engineer to furnish a certificate, and his refusal to do so was unreasonable; and hence the certificate was not a condition precedent to an action to recover a balance due on the contract.—Supreme Court of New York, 119 N. Y. S., 127.

Indebtedness—Public Utility

City of Ardmore et al. vs. State ex rel. Best.—Section 27, Article 10, of the Constitution authorizes any city or town, by a majority vote of the qualified property taxpaying voters of such city or town, voting at an election held for that purpose, to become indebted in a larger amount than that specified in section 26, for the purpose of purchasing or constructing public utilities, or for repairing the same, to be owned exclusively by the city. A public park is a "public utility" within the meaning of that term as used in section 27 of the Constitution, and bonds for the improvement of such parks are by said section authorized to be issued by incorporated cities and towns in the manner therein provided for.—Supreme Court of Oklahoma, 104 P. R., 913.

Vacating Street—Property

Smith et al. vs. City of Centralia.—An ordinance vacating a part of a street without providing a means for the ascertainment of damages to property abutting on the street is void as taking property without compensation, in violation of the Constitution, as the interest an abutting property holder has in the maintenance of a street is property. An ordinance vacating a part of a street is void where the Councilman who cast the deciding vote for its passage was one of the petitioners for the ordinance, and one who would profit by its enactment.—Supreme Court of Washington, 104 P. R., 797.

Intoxicating Liquors—Nuisances

Mayhew vs. City of Eugene.—The city of Eugene, being authorized by Special Laws of 1905 to prevent, regulate, prohibit and remove nuisances, and declare by ordinance what shall constitute a nuisance, had power to declare that the maintenance in the city of a house for the unlawful sale of liquors or the carrying on of such business was a nuisance, under the rule that the city's declaration that a particular thing shall be a nuisance under such general authority will not be overruled by the courts unless arbitrary, unjust and manifestly wrong.—Supreme Court of Oregon, 104 P. R., 727.

Personal Injuries—Sidewalks—Evidence

Miller et al. vs. Village of Mullan.—In a case where there is no dispute as to the particular place at which an injury occurred on a sidewalk or cross-walk, evidence of the defective or unsafe condition of the sidewalk at other places within that vicinity is incompetent and inadmissible, except it be in a case where it is claimed that the defect was not a special one, but was due rather to the general decayed and bad condition of the whole walk, of which the particular place where the injury was suffered was a part.—Supreme Court of Idaho, 104 P. R., 660.

Defective Streets—Admissibility of Evidence

Schulich vs. Mayor, etc., of City of Wilmington.—If a city had notice that surface water stood in a street before a ditch was dug therein, the jury may consider such condition of the street in determining whether the city was negligent in filling the ditch, in an action for injuries claimed to have been caused by its negligence in filling and packing the ditch.—Superior Court of Delaware, 74 A. R., 367.

NEWS OF THE SOCIETIES

City Club of New York.—At the first of the luncheons held this winter the subject of ballots and election reforms generally were discussed. President-Emeritus Charles W. Eliot of Harvard spoke, describing his tribulations as a voter, even under the Massachusetts laws. He said the only means by which the voters could free themselves from the tyranny of the boss is the extension of the Civil Service system and the reduction in the number of elective officers. He pointed out the absurdity of electing men to places that require technical skill and suggested that they should be appointed by competitive examination. The abolition of the long ballot would have to precede the abolition of the political machine. At the last election Dr. Eliot told how he had to vote for from 16 to 20 elective offices. For one there were five candidates, for the others two or three. He had heard of only five of the candidates. Reduction in the size of the ballot would not be a curtailment of liberty. The present system had brought us to the worst system of misgovernment the world had ever known. A man who has to vote for 20 men he does not know is not as free as one who votes for two or three he does know and leaves the appointment of the others to them. There is hardly an office in a large city that does not require a man trained in applied science. Addresses on ballot reform were also made by Richard Henry Dana, Boston; Ex-Supreme Justice William M. Cohen; Walter H. Knapp, Canandaigua, N. Y., and William M. Ivins.

American Society of Mechanical Engineers.—At the thirtieth annual meeting, New York, N. Y., December 7-10, 15 technical papers were read during the four sessions. Among the papers was one by A. F. Nagle, South Bethlehem, Pa., on "Pump Valves and Valve Areas," in which it was stated to be poor practice to proportion the area of water works pumping engine valves to the plunger area because there is no distinction made between the valve seat and the circumferential area of the valve at any lift, either assumed or specified; and also because it leads to absurdities unless coupled with the length of stroke and the number.

The following officers were elected: President, George Westinghouse, Pittsburgh; vice-presidents, C. W. Baker, New York; W. F. M. Goss, Urbana, Ill.; E. D. Meier, New York; managers, J. S. Bancroft, Philadelphia; James Hartness, Springfield, Vt.; H. G. Reist, Schenectady, N. Y.; treasurer, W. H. Wiley, New York.

Association of American Portland Cement Manufacturers.—The annual meeting was held at the Hotel Astor, New York, December 13-15. The business meetings were held with closed doors. John B. Lober retired as President and was succeeded by M. S. Mallory, of the Edison Portland Cement Company. At the public meeting papers were read on the following subjects: By Robert W. Lesley, reviewing recent proceedings of the German Society of Cement Manufacturers; by S. B. Newberry, on the work of the Technical Committee, relating largely to the effect of oil on concrete; by Logan Waller Page, on the possibilities of Portland cement in highway construction; by Benjamin A. Howes, on artistic concrete building construction.

American Society of Engineering Contractors.—At the first monthly meeting of the society in the Engineering Societies Building, New York, N. Y., December 14, a paper by Halbert P. Gillette on "The Science of Management Engineering" was presented. The author discussed the possibilities of profit in contracting work, claiming that the proper application of the principle of paying each man in proportion to the work he actually performs would develop a veritable gold mine for the successful contractor. In elaborating the idea a number of specific instances were given showing, in the author's opinion, how the principle could be applied. In excavating earth, for instance, he would have but one or two men loading a wagon, and would keep a sufficient number of empty wagons on the ground to employ all the men steadily without keeping teams idle. An animated discussion followed the reading of the paper. No one denied the truth of the abstract principle, though few of the members seemed to have a clear idea of how it could be applied. Some did not think it could be applied. Curiously enough, the strongest advocate of the Gillette system of bonuses was Frank B. Gilbreth, a contractor who works mostly on the basis of cost plus a percentage, and thus it would seem would be under the least necessity of any one of discovering a system by means of which a low bidder might make large profits. Mr. Gilbreth gave his unqualified approval to the principles expounded in the paper, and stated that the only way to do work cheaply was to keep an exact record of the actual work done by each man and to reward or punish him accordingly. He gave instances from his own work showing how the cost of unloading bricks from cars, and of loading dirt into buckets had been reduced by systematizing the work so that records of individual workmen could be kept. Mr. Gilbreth did not state what bonuses had been paid in the instances cited.

Pennsylvania Conference on Charities and Corrections.—The closing night of the three-day conference, Harrisburg, December 6-8, was devoted to municipal work. Allen T. Burns, Secretary of the Pittsburgh Civic Commission, spoke on "Co-operation," urging people and associations to take their projects to city officials and arrange with them for a plan to put them through. He related some instances of the good results of such a policy in Pittsburgh during the recent loan campaign.

Brooklyn Engineers' Club.—The thirteenth annual dinner was held at the clubhouse, 117 Remsen street, December 9, with about 125 members in attendance. Speeches were made by John Sherwin Crosby, Daniel E. Moran, J. W. Beardsley and Walter H. McElroy. Alfred T. White, an honorary member, announced that he would make the club a substantial present for furnishing and refitting the clubroom. The following officers were elected for the ensuing year: President, George A. Orrok; secretary, Joseph Strachan; treasurer, William T. Donnelly; directors, William Andrews and Frederick C. Noble.

Municipal Engineers of the City of New York.—At the meeting to be held December 22 at 8 p. m. in the Engineering Societies Building, New York, N. Y., a paper will be presented by Francis L. Pruyn on "The Reduction of the Water Table and Its Effect on Foundations in New York City."

New York State Private Water Works Association.—The second annual meeting of the association was held December 10-11 at the Hoffman House, New York City. Walter Wood, chairman of a committee, reported progress in securing co-operation between water works managers and the State Tax Commissioners regarding the assessment of water works properties. A uniform standard for depreciation was suggested, but thought to be impracticable on account of the difference in this respect between gravity and pumping plants. George C. Whipple read a paper dealing with filtration of water supplies. He called attention to the German regulations which require all surface supplies to be filtered and the Massachusetts statutes regarding the sanitary control of watersheds. Robert E. Milligan, manager of the filtration department of the New York Continental Jewell Filtration Company, read a paper on the mechanical filtration of water. He said that a mechanical filter may be operated at the rate of 125,000,000 gallons per acre day, as compared with 3,000,000 gallons for slow-sand filters. Prof. James C. Caird spoke of measures adopted at Troy, N. Y., to prevent the growth of algae. George A. Johnson read a paper on the sterilization of water by the use of oxygenated chlorine compounds. The election of officers for the ensuing year resulted as follows: Mr. R. U. Sherman, president; Mr. Walter Wood, vice-president; Mr. E. C. Smith, secretary; Mr. F. P. Taber, treasurer; Mr. D. B. McCarthy, Mr. F. B. Lord, Jr., Mr. J. T. Sawyer, Mr. John A. Kloeppfer and Mr. S. J. Dill, executive committee.

City Club of Chicago, Ill.—At a meeting of the club, 228 South Clark street, December 8, Dr. Edgar S. Barney, New York, N. Y., delivered a lecture on "Industrial Education for Boys."

Youngstown Engineering Club.—At a meeting of the club Eugene Kirk read a paper suggesting solutions of the problem of a better water supply for Youngstown. The following committee was appointed to report on the subject at the meeting to be held January 16: E. Smith, G. N. Lemmon, John Hunter and E. C. Bannister. Mr. Kirk advocated two water supplies, one for domestic use and the other for flushing the streets and sewers and for fire protection.

Municipal Art Society of New York.—At a meeting in the National Arts Club Galleries in Manhattan, Milo R. Maltbie, Public Service Commissioner, spoke of rapid transit plans. Alexander Baxter, Boston, delivered a lecture, illustrated with lantern slides, on "Achievements and Ideals in City Planning." E. B. Boynton, Bronx Borough, spoke of the rapid growth of that section and dealt with the development of modern dwellings with miniature parks attached.

Municipal Club of Renovo, Pa.—At a recent meeting at which Chief Burgess Reilly presided, State Fish Commissioner W. E. Meehan delivered an address on "Pollution of the Rivers."

Washington Playground Association.—At a meeting of the Board of Directors, in the rooms of the Board of Trade, Washington, D. C., it was unanimously agreed to address a communication to the District Commissioners requesting that they recommend legislation providing for a playground commission to have official control of the playground movement.

American Institute of Architects.—The forty-third annual convention was held at the New Willard Hotel, Washington, D. C., December 14-16. The following officers were elected for the coming year: President, Irving K. Pond; first vice-president, Walter Cook; second vice-president, Edgar V. Seeler; secretary and treasurer, Glenn Brown; directors, Cass Gilbert, Ralph Adams Cram, John G. Howard. The next convention will be held in some city on the Pacific Coast.

American Institute of Chemical Engineers.—At its second annual convention at Philadelphia, Pa., the American Institute of Chemical Engineers elected the following officers: President, Charles F. McKenna, New York; vice-presidents, E. G. Acheson, Niagara Falls, and Eugene Haanel, Ottawa; secretary, John C. Olsen, Brooklyn; treasurer, William M. Booth, Syracuse; directors, Samuel P. Sadtler, Philadelphia; William M. Grosvenor, New York, and Richard K. Meade, Easton, Pa. The next convention will be held in Toronto.

Virginia State Anti-Tuberculosis Society.—A new society with the above title was organized at Richmond, Va., November 6. W. W. Baker, of Hallsboro, was elected President. Among the Vice-Presidents are Governor-elect Mann, Governor Swanson and President Alderman of University of Virginia.

Civic Improvement Club of Pittsburg, Tex.—At a meeting of the club, December 8, a petition was addressed to Council asking that an ordinance be passed against spitting on the sidewalks. A committee was appointed to ask the business men to provide trash barrels at their places of business.

Calendar of Meetings

December 27.

American Association for the Advancement of Science.—Annual meeting, Boston, Mass. L. O. Howard, Secretary, Smithsonian Institute, Washington, D. C. January 6-8.

Montana Society of Engineers.—Annual meeting, Butte, Mont.—Clinton H. Moore, Secretary, Butte, Mont. January 12-14.

Michigan Engineering Society.—Annual meeting, Lansing, Mich.—Alba L. Holmes, Secretary, 574 Wealthy ave., Grand Rapids, Mich. January 14-16.

Indiana Engineering Society.—Annual convention, Indianapolis, Ind.—Chas. Brossman, Secretary, Union Trust Bldg., Indianapolis, Ind. January 18-20.

American Society of Heating and Ventilating Engineers.—Annual meeting, New York, N. Y.—W. H. Mackay, Secretary, P. O. Box 1818, New York, N. Y. January 19-20.

American Society of Civil Engineers.—Annual meeting, New York, N. Y.—Charles Warren Hunt, Secretary, 220 W. 57th st., New York, N. Y. January 20-22.

American Society of Inspectors of Plumbing and Sanitary Engineers.—Annual convention, Trenton, N. J.—C. S. McCosker, Secretary, Mobile, Ala. January 25-27.

Canadian Society of Engineers.—Annual meeting, Ottawa, Ont.—C. H. McLeod, Secretary, 413 Dorchester st., West, Montreal, Quebec. January 26-28.

Illinois Society of Engineers and Surveyors.—Annual meeting, Cairo, Ill.—E. R. Tratman, Secretary, 1636 Monadnock Block, Chicago, Ill. February 7-12.

National Brick Manufacturers Association.—Annual convention, Pittsburg, Pa.—T. A. Randall, Secretary, Indianapolis. February 8.

Connecticut Society of Civil Engineers.—Annual meeting, New Haven, Conn.—J. Frederick Jackson, Secretary, Box 1304, New Haven, Conn. February 21-25.

National Association of Cement Users.—Annual meeting, Chicago, Ill.—Geo. C. Wright, Secretary. Address communications to Edw. E. Krause, Asst. to President, Harrison Bldg., Philadelphia, Pa.

PERSONALS

ADAIR, ALBERT C., Paris, Ky., has been elected City Clerk; James McClure, City Treasurer; Charles McMillan, City Attorney.

ADAM, JOHN N., Mayor of Buffalo, N. Y., has given \$19,500 for the purchase of a site for a tuberculosis hospital.

ALEXANDER, GEORGE, Mayor of Los Angeles, Cal., has been re-elected. Other officers chosen were: Leslie R. Hewitt, City Attorney; Harry J. Leland, City Clerk; John S. Myers, City Auditor; C. H. Hance, City Treasurer; Walter Mallard, Assessor; Charles M. Taggart, Tax Collector.

CHURCH, DANIEL W., Assistant City Engineer, of Chicago, died recently.

COOK, JOSEPH, Chief of the Cedar Rapids, Ia., Fire Department for nine years, died December 9.

CONTZ, T. P., Muskogee, Okla., has been named as City Engineer, succeeding C. C. Dudley, who has been acting City Engineer since the resignation of L. B. Kinsey several weeks ago.

CUMMINGS, A. L. T., Portland, Me., has been elected City Clerk. Other officers elected are: City Treasurer, Samuel L. Gilbert; City Auditor, Charles S. Thurston; City Messenger, Sumner W. Johnson; City Assessor, John G. Munroe; City Physician, Harold J. Everett; City Solicitor, Emory G. Wilson.

CRUMP, E. H., Memphis, Tenn., has been declared Mayor by the Supreme Court. The election was contested by J. J. Williams.

EVANS, W. SANFORD, Mayor of Winnipeg, Manitoba, has been re-elected.

FLETCHER, AUSTIN B., Boston, Mass., Secretary of the Massachusetts Highway Commission, has resigned that position in order to become chief engineer of the extensive road improvements which will be carried out in San Diego County, Cal.

FLORANCE, W. E., Mayor of New Brunswick, N. J., has appointed a commission of five to investigate and report on the sewage disposal problem of that city. The members of the commission are Prof. A. A. Tittsworth, of the civil engineering department of Rutgers College; F. C. Schneider, City Surveyor; F. B. Kilmer, president of the Board of Health; A. J. Jones, formerly superintendent of the Water Board, and C. A. Dunham.

FOSTER, JEREMIAH, Gloucester, Mass., has been elected Water Commissioner, to succeed Thomas T. Waldron, resigned.

GILMORE, FREDERIC, Mayor-elect, Utica, N. Y., has announced the following selections as heads of department:

Corporation Counsel, William Townsend. City Engineer, William F. Cogley. Commissioner of Public Works, Henry R. Beebe. Commissioner of Public Safety, William L. Foley. Commissioner of Charities, John A. Cantwell. Civil Service Commissioners, John M. Dolan, Arthur D. Jones and J. Edgar Smith.

HARMON, JOHN C., Sandusky, O., has been selected as Chief of the Fire Department by Mayor-elect George T. Lehrer, he is 6 feet 6 inches tall, and weighs 250 pounds.

HERTZOG, JOHN A., Mayor-elect, Mishawaka, Ind., has announced the following appointments:

Chief of Police, Harvey Frick. Chief Fire Department, A. J. Buyssee. Street Commissioner, Otto Mulinch. City Engineer, William S. Moore. Health Board, Dr. E. J. Ball, Secretary; Dr. C. A. Dresch, Dr. H. H. Hewitt.

HOGAN, FRANK G., Cleveland, O., has been named as Director of Public Safety by Mayor-elect Herman Baehr.

JAGOW, HERR VON, Berlin, Germany, has been appointed President of the Police.

MACKENZIE, P. A., Lowell, Mass., has been re-elected Purchasing Agent over Edward H. Foye.

PUCKETT, Dr. J. L., Mayor-elect of Kokomo, Ind., has made public the following appointments:

J. C. Herron, City Attorney. H. H. Stewart, Commissioner of Public Works. Jackson Morrow, City Engineer.

Chas. Humrickhouse, Police Commissioner.

Harvey, Daniel, New Castle, Ind., formerly of the Anderson Fire Department, has been appointed Fire Chief.

RIDDALL, GEORGE, Grand Rapids, Minn., has been elected Chief of the Fire Department.

ROWE, H. J., Athens, Ga., has been elected Mayor.

STEERS, A. E., President-elect of the Borough of Brooklyn, New York City, has announced the following appointments:

Louis H. Pounds, Public Works Commissioner.

John B. Creighton, Private Secretary. John Thatcher, Superintendent of Buildings.

William A. Oakley, Deputy Superintendent of Buildings. William J. Taylor, Superintendent of the Bureau of Sewers.

ROGERS, JOHN P., City Engineer of Topeka, Kan., has resigned. Assistant City Engineer W. S. Fulton has been appointed City Engineer.

WATTS, GEORGE W., Durham, N. C., has presented to the city and county of Durham Watts Hospital, built at an expense of \$250,000 and endowed with \$200,000.

WERT, Captain M. V., Mayor-elect of Crawfordsville, Ind., has announced that he will appoint Allen Michael, Chief of Police; Burt Ramsey, Chief of the Fire Department; William H. Hurley, Street Commissioner, and Dr. W. G. Swank, Secretary of the Board of Health.

WHITE, JOHN F., South Jacksonville, Fla., has been elected Mayor over Gary S. Hendricks.

Massachusetts cities last week elected the following chief executives; those with a * having been re-elected:

Beverly, *Chas. H. Trowt over Alderman Desmond and Sumner E. Gline.

Chicopee, Samuel E. Fletcher over Mayor William B. Fuller.

Everett, *Charles Bruce over ex-Mayor Arthur W. Hatch.

Holyoke, *Nathan P. Avery over M. H. Bullard. This will be Avery's sixth term.

Lowell, John F. Meehan over Mayor George H. Brown.

Lynn, *James E. Rich over John B. Newhall, who favored a commission form of government.

Malden, George H. Fall over George L. Farrell and Charles R. Elder. This was Fall's sixth consecutive campaign. All candidates were nominated by petition without party designation.

Melrose, *Eugene H. Moore over ex-Mayor Charles G. Barton and Charles C. Swett.

Newburyport, Robert E. Burke over Moody B. Noyes and Edward G. Moody.

Newton, Charles E. Hatfield, no opponent.

Salem, Arthur Howard over Mayor John F. Hurley, who has been defeated five times in fourteen contests; Howard has been a resident of Salem only a year.

Somerville, *John H. Woods over John F. Foster and Thomas M. No'an.

Woburn, Hugh D. Murray over Harry W. Clark.

Worcester, James Logan over McGovern.

Mayors have been elected as follows:

Rochester, N. H., Joseph Warren.

Portsmouth, N. H., Mayor Edward H. Adams, re-elected over Chauncey B. Hoyt.

Keene, N. H., John E. Benton over Mayor M. B. V. Clark.

Newberry, S. C., Mayor Cole L. Blease.

Newcastle, Ind., Mark E. Forkner over James L. Watkins.

Warrenton, Ga., M. L. Feltz.

Sanford, Fla., Forest Lake.

Lenoir City, Tenn., Frank A. Weiss.

Westbrook, Me., Mayor Harry F. G. Hay.

Canby, Ore., Dr. Henry A. Dedman.

Union, Ore., L. A. Wright.

Tillamook, Ore., Mayor Thomas Coates.

Stayton, Ore., Mayor W. L. Freres.

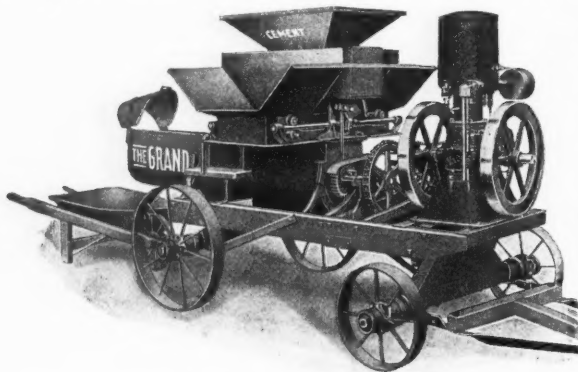
Marshfield, Ore., Mayor E. E. Straw.

Lebanon, Ore., O. M. Reeves.

MUNICIPAL APPLIANCES

The Grand Concrete Mixer

THE Grand Concrete Mixer, manufactured by the Hall-Holmes Mfg. Co., Jackson, Mich., is built for the use of contractors for sidewalks, street pavements and reinforced concrete work. It is built in two sizes, one having a capacity of 7 cubic yards per hour, the other of from 10 to 15 cubic yards per hour. The two sizes are of similar construction in principle, the difference being only in the weight and size of some parts of the apparatus. No. 1 has a 2½-hp. and No. 2 a 5-hp. gasoline engine. The mixer is of the pug mill type, having 26 or 48 mixing blades. The mixing trough in the small machine is of No. 8 gauge and of the large machine even thicker. Water is supplied by a perforated pipe running along the inside of the mixing trough for a distance of 18 inches near the discharge end and is under control all the time. The feeding device consists of three hoppers, the middle one for cement and the outside ones for sand, gravel and rock. The cement hopper is equipped with a rotary cup feed. By



THE GRAND CONCRETE MIXER

changing the position of a slide above this cup feed the operator can adjust the machine to any proportion desired. Special reliability in measurement is claimed for this machine even when handling wet materials. There are no agitators in the hoppers and no pockets in the feeding device to partly fill with adhering material. The two outside hoppers have a reciprocating movement which forces the material through, and upon the return movement the material is struck off, making the measurements exact. As the materials drop into the trough they receive a good gravity mix.

The Keyes Street-Sweeping Machine

WE illustrate herewith a new automobile street-cleaning machine which is the product and result of over two years' experimenting and development by two citizens of Muncie, Ind., Messrs. E. L. Keyes and D. Carl Smith. The dirt and refuse are gathered by rotating brushes and then by pneumatic power are sucked or lifted into conduits where the heavier parts of the refuse are extracted and deposited in closed receptacles. The fine dust is carried onward in closed conduits and by the use of water is converted into the form of silt. Throughout the entire process the gathered refuse is wholly isolated from contact with the outer air and the operation of the machine is therefore entirely sanitary.

The suction mechanism is operated

by the engine which propels the machine, the power of the exhaust being utilized in the process of separating and reducing the dust.

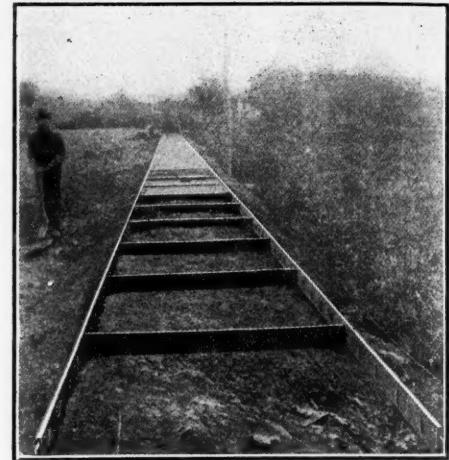
The Keyes sweeper is said to have demonstrated by recent tests its ability to thoroughly clean in an hour as much street surface as the old-fashioned horse-drawn sweeper will sweep or brush in six hours. Several of the Keyes machines have already been manufactured by the Keyes Sweeper Company, the picture below showing the latest type.

New Idea in Sidewalk Forms

A GREAT saving in labor and lumber is claimed for the ingenious forms for sidewalk laying that have just been placed on the market by the Hotchkiss Lock Metal Form Company, of Binghamton, N. Y. They are constructed entirely of metal and are simple in design and operation. The inventor, Mark S. Hotchkiss, is a pioneer in concrete construction in that section of New York and is the author of the municipal specifications for cement sidewalks in the city of Binghamton. The forms consist of metal side-

pieces, with a flange at top and bottom to keep them rigid, and cross-pieces, the ends of which project through slots in the side-pieces and are held there by keys. The cross-pieces, or division plates, are made in different lengths for different widths of walk, and all the parts are interchangeable and reversible. The cross-pieces are an eighth of an inch in thickness and thus make a clean expansion joint that requires no filling or cutting. There are also flexible side-pieces for making curves.

The forms are set up on grade or on made ground without stakes or braces, and when one section is squared up and filled with concrete the remaining sections are held firmly in place and perfect alignment is attained. As the slots occur at regular intervals, it is not necessary to do any measuring and much



HOTCHKISS CEMENT SIDEWALK FORMS

time is saved over the old way of sawing off wooden division plates and fitting them in place. Another important feature is that the edge of the side-pieces and of the cross-pieces as well, make a perfect straight edge for striking off. There are no projection or inequalities to interfere with this, and a steel tool can be used.

As there are no stakes to pull up or braces to knock loose, the forms may be removed as soon as the walk is floated. The keys are taken out and the side-pieces are removed without in the least disturbing the walk. The cross-pieces are gently tapped on the side to render them perfectly free and are then lifted out, when a reamer may be run over the joint to finish it. The forms can at once be moved forward to another stretch of walk, and if it is desired to float the sides of the walk, this can be done easily before the concrete is dry.

The entire elimination of lumber for both side-pieces and division plates, as well as for stakes and braces, means an important economy, and Mr. Hotchkiss estimates that by his use of them on numerous jobs during the past summer he has saved on the average 20 per cent for labor. It is claimed for the forms that in general they save at least two cents per square foot in the cost of laying all widths of cement sidewalk.



PNEUMATIC STREET SWEEPER

TRADE NOTES

Cast Iron Pipe.—Chicago: Market is very quiet. Quotations: 4-inch, \$28.50; 6 to 12-inch, \$27.50; 16-inch and up, \$26.50. Birmingham: There has been no advance in the price of cast iron pipe. Quotations: 4 to 6-inch, \$26; 8 to 12-inch, \$25; over 12-inch, average \$24. New York: Current business is light, but good inquiries are being received for next year's business. Quotation: carload lots, 6-inch, \$25.50.

Lead.—Prices have advanced: New York, 4.50c; St. Louis, 4.40c.

Natural Gas.—The Union Gas and Electric Company, Cincinnati, O., has made a new contract with the Fuel Supply Co. by which gas was delivered again December 15, after the service had been discontinued for several months. The contract calls for from 3,000,000 to 5,000,000 feet a day, increasing to 10,000,000 feet at the end of the seven years for which the contract runs. The supply company has an 18-inch main to the Sugar Grove fields capable of delivering 50,000,000 feet a day. Another company, the Cincinnati Gas Transportation Company, has a 20-inch main 160 miles long leading to the West Virginia fields. This line has a capacity under pressure of about 70,000,000 cubic feet a day. The present consumption of natural gas in Cincinnati is 35,000,000 feet a day, four times the consumption of artificial gas.

Mechanical Filtration.—The New York Continental Jewell Filtration Co., 15 Broad street, New York, issues a 64-page catalogue describing and illustrating the various devices manufactured by them for purifying and filtering water in quantities sufficient to supply either a house or a city. A great many types of filters are made, each being specially adapted to some condition or purpose. A list of 260 cities and towns in which the filters are used for municipal supplies is added.

Electric Car Brake.—A handsomely furnished trolley car weighing fifteen tons has been equipped with an electric safety brake, the invention of A. L. De Willins, of Dayton, O. The car will be taken on a tour of cities for the purpose of demonstrating the efficiency of the brake. The patent is owned by the Electric Safety Brake Company, of which George Campbell, of Cincinnati, O., is president.

Public Service Banquet.—In accordance with an annual custom, more than 300 employees of the Street Railway Department of the Public Service Corporation assembled at the car barn, Dunellen, N. J., December 2, for the purpose of attending a banquet, witnessing a vaudeville entertainment and listening to speeches by N. E. Boland, of Newark, general manager of transportation; J. J. Gettings, division superintendent of Elizabeth, and George H. Luhr, local traffic manager. The banquet is furnished to the men by the corporation.

Auto Engine Tested.—The first auto fire engine purchased by any Texas city was tested at Galveston December 4. Representatives from Houston, Dallas, San Antonio and other cities were present. The engine was built by the Howe Manufacturing Company, Indianapolis, Ind.

Fire Hose.—The Eureka Fire Hose Mfg. Company has opened an office at 610 Postal Telegraph Building, San Francisco, Cal., with W. A. Daggett, Manager, for the handling of fire hose on the Pacific coast.

Gas from Waste.—Louis G. Harris, East Orange, N. J., gave a demonstration of a process he has developed for converting garbage, street sweepings, peat, sawdust and other waste organic matter into gas for lighting, heat and power. The apparatus consists of the customary gas-making equipment on a miniature scale. There is a furnace and retort, condenser, purifier and storage tank. At the exhibition Mr. Harris burned a shovelful of garbage secured at a nearby saloon, securing from it sufficient gas to run twelve burners and operate a 60-horsepower engine which generated, through a dynamo, electricity for four big arc lights for an hour. The supply, Mr. Harris declared, would have lasted three times as long had he not emptied the tank in order to give a second demonstration. This time two shovelfuls of peat were used. After first heating his furnace and retort to a redhot condition, he placed the peat on a long, narrow iron tray. On this he sprinkled a liquid which he said contained alkalis, after which he shoved the tray and contents into the furnace oven. Instantly gas began to develop. The twelve gas jets and the engine were then started. The lights burned with a clear, transparent flame and the engine ran smoothly and with rapidity. Mr. Harris claims that garbage converted by his process produces 15,000 cubic feet of gas per ton, which has 30-candlepower illuminating capacity and 800 thermal units. Ten gallons of his chemical mixture are added to a ton of garbage and the cost is five cents per gallon.

Hubbard Water Works.—J. E. Clonch has bought from W. R. Bounds the water works at Hubbard, Tex., and is making some very extensive improvements on the property. He has begun work on a second storage tank, which will double the storage capacity of the plant and enable the town to go as long as two years without rain after the tanks once get filled up.

New Lighting Equipment.—The new 1,500-kilowatt turbo-electric generator recently purchased by the Wilmington City Electric Company is now in operation at the Brandywine station, Wilmington, Del. It will carry 36,000 16-candle-power lamps. These, spaced 38 feet apart, would reach in an unbroken line from Wilmington to Philadelphia. The total weight of the set is 120,500 pounds, and the contract price about \$20,000.

Engineers' Fees an Issue.—The United Paving Company, refusing to accept a final voucher of \$4,259.52 from Asbury Park for the construction of the sewage disposal tank on account of deduction and extra engineers' fees will take their claim of \$6,618.24 to the courts for collection.

Contractors' Plant Burned.—The asphalt plant of Whitmore, Rauber & Vicinus, in Trinidad street, Rochester, N. Y., was destroyed by fire December 9. Loss, \$19,500.

Vulcanol.—The American Vulcanol Company, New Haven, Conn., recently incorporated, will put on the market a paving material which is a German invention, described as an artificial stone. In appearance it is said to resemble granite and can be laid as a sheet pavement or in blocks. In laying this pavement the outside of it is burned, and after it has worn for six months the burned surface comes off and leaves a gritty pavement of the same composition all the way through. It is planned to build a factory for the manufacture of the material in New Haven.

Tunnel Company Reorganization.—Judge C. C. Kohlsaat, in the United States Circuit Court, has appointed receivers for the Illinois Tunnel Company and the Chicago Warehouse and Terminal Company, companies held by the \$50,000,000 Chicago Subway Company. David R. Forgan, president of the National City Bank, and Charles G. Dawes, president of the Central Trust Company of Illinois, were named as receivers for the tunnel company, and Edwin A. Potter, president of the American Trust and Savings Bank, for the other. The companies went into receivership after two judgments had been rendered against them in favor of the Corporation Trust Company. The judgment against the warehouse company was for \$3,046,794, and that against the tunnel company \$1,129,428. The tunnel company includes in its organization the Illinois Telephone and Construction Company, which is also affected by the receivership. The receivership is the initial step in a plan to reorganize the two companies under friendly terms. A reorganization committee will enter upon the task of carrying to completion the tunnel and its connecting entrances. Reorganization was made necessary because the bond limit for the tunnel company had been reached.

Contracting Company Reorganizes.—The O. T. Dunlap Construction Company, of Edwardsville, Ill., which has the contract for building the \$643,000 outlet sewer for East St. Louis, Ill., has executed a new bond for \$150,000 with the National Surety Company. The Dunlap Company recently sold a majority of its stock to the Lorimer-Gallagher Construction Company, of Chicago. The two concerns have joined hands for the building of the sewer, although the contract still is with the Dunlap Company.

New Bridge Works.—The Detroit Bridge & Steel Works, recently incorporated at Detroit, Mich., with a capital of \$2,000,000, has purchased eight acres of land at the Michigan Central Railroad and Dearborn road, upon which two factory buildings, each 150 x 400 feet, will be erected and equipped.

Gasoline Traction Engine.—The Geiser Mfg. Company, Waynesboro, Pa., has enlarged its Greencastle factory for the purpose of manufacturing a gasoline traction engine. Its main factory at Waynesboro will also probably be enlarged to turn out a recently designed steam road roller. No purchase of shop machinery is contemplated at the present time.

INCORPORATIONS

The Joliet Concrete Machinery Co., Joliet, Ill., has been incorporated, capital stock, \$25,000, to manufacture and deal in concrete machinery. Incorporators: James Straka, Eneshira Meers and Maurice F. Lemon.

Millington Water Co., Millington, N. J.; operate water works in town of Passaic, N. J.; capital, \$20,000. Incorporators: Duane H. Nash, F. W. Boss, Frederick N. Taff, Nicholas Thomas and John Kettenring, all of Millington, N. J.

Monroe Electric Co., Monroe, Wis.; capital, \$50,000. Incorporators: W. P. Bragg, E. L. Wood and J. H. Darst.

River Front Power & Irrigation Co., Bayonne, N. J.; operate water works, irrigating ditches; capital, \$50,000. Incorporators: Allen Benny, 51 North Sixth st., Newark, N. J.; T. Harry Sylvester, Worcester, Mass.; George H. Kramer, Bayonne, N. J.

Union Gas & Electric Co., Oklahoma City; Okla.; capital, \$50,000. Incorporators: F. L. Brandiger, C. M. Stephenson and E. B. Brown.

Upper Gwynedd Water Co., North Wales, Pa.; capital, \$5,000.

White Oak Light, Heat and Power Co., Benson, Pa.; capital, \$20,000.

THE WEEK'S CONTRACT NEWS

Relating to Municipal and Public Work—Street Improvements—Paving, Road Making, Cleaning and Sprinkling—Sewerage, Water Supply and Public Lighting—Fire Equipment and Supplies—Bridges and Street Railways—Sanitation, Garbage and Waste Disposal—Police, Parks and Miscellaneous—Proposals and Awards

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we can not guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also corrections of any errors discovered.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREET IMPROVEMENTS				
New York	Buffalo	Dec. 24, 11 a.m.	Repaving 5 streets, various kinds of pavement.	F. G. Ward, Com'r of Pub. Wks.
Florida	Jacksonville	Dec. 24, 9:30 a.m.	Furn. two 7-ton standard gasoline rollers f. o. b. County.	Gail L. Barnard, County Engineer.
Utah	Salt Lake City	Dec. 24, 8 p.m.	Grading, paving, curbing 2 sts.; cemented walks, Ext. 136.	Geo. O. Chaney, City Engineer.
Pennsylvania	Philadelphia	Dec. 28, noon.	Paving, curb, vit. block, granolithic and asphalt pavement.	Comrs. of Fairmount Park.
Ohio	Woodsfield	Dec. 28, noon.	Grading, brick paving or macadamizing, 1.02 miles.	Board of County Comrs.
New York	Dobbs Ferry	Dec. 28, 8 p.m.	Macadam or vit. brick on concrete, new st., 700 ft. long; grading, gutters, concrete retaining wall, etc.; cost, \$30,000.	O. Wald Shuler, Town Clerk.
Alabama	Huntsville	Dec. 28, noon.	Paving 20,600 sq. yds., any material; curb gutter, 11,200 lin. ft.	Thomas W. Smith, Mayor.
California	Covina	Dec. 28, 8 p.m.	Imp. Center st., crushed rock, mineral oil, etc.	A. M. Pence, City Clerk.
Ohio	Newburg	Dec. 29, noon.	Furn. material, grading and laying delinquent sidewalks.	Wm. H. Evers Eng. Co., Arcade Cleveland.
New York	Brooklyn	Dec. 29, 11 a.m.	Regulating and repaving and laying sidewalks, various streets.	Bird S. Coler, Boro. President.
New York	New York	Dec. 30, 3 p.m.	Paving with asphalt all unpaved walks in St. Mary's Park.	Henry Smith, Pres. Park Board.
New Jersey	Mays Landing	Jan. 1, noon.	Bldg. gravel road from city to bridge in Tuckahoe.	E. D. Rightmire, County Engr.
North Carolina	Newbern	Jan. 4, noon.	Brick paving, cement or sand filler; bitulithic or asphalt macadam, 48,000 sq. yds. or part thereof.	F. T. Patterson, City Clerk.
Florida	Jacksonville	Jan. 5, 9:30 a.m.	Resurfacing 25 miles macadam, shell or gravel roads in Duval County.	Gail L. Barnard, County Engr.
North Carolina	Lenoir	Jan. 5, 7 p.m.	Grading and macadamizing 3 miles of road and macadamizing 3 additional miles; C. M. Miller, Engr.	Lenoir & Blowing Rock Turnpike Co.
Alabama	Mobile	Jan. 6, noon.	Cement paving, 3,760 sq. yds. on 4-in. concrete; grading, etc.	Wright Smith, Ch. Engr. B. P. W.
Kansas	Ft. Leavenworth	Jan. 8, noon.	Grading 84,000 cu. yds. of earth.	Capt. Wm. D. Davis, Q. M.
SEWERAGE				
Kentucky	Louisville	Dec. 24, noon.	Bldg. Jane st. sewer; Contract No. 59: 3,460 ft. 8-33-in. sewer, 4 to 17 ft. deep, inc. 1,300 cu. yds. rock excav., 700 cu. yds. concrete, 5,700 ft. 8 to 24-in. vit. pipe.	Comrs. of Sewerage.
Nebraska	Lincoln	Dec. 27, 10 a.m.	Bldg. rein. concrete conduit for Antelope Creek; \$12,000.	R. C. Ozman, City Clerk.
Oklahoma	Oklahoma City	Dec. 27, noon.	Bldg. main sanitary sewer, lines B, D and E.	Bob Parman, City Clerk.
New York	New York	Dec. 28, noon.	Bldg. 206 feet 3 ft. 6 in. by 2 ft. 4 in. brick sewer in Theater alley.	John Cloughen, Act. Pres. Man. Boro.
Missouri	Joplin	Dec. 28, 5 p.m.	Bldg. 3 sewers, 22,000 ft., 1,844 ft. and 5,939 ft. long.	J. B. Hodgdon, City Engineer.
New Jersey	Sea Girt	Dec. 28, noon.	Furn. material and install. sewage disposal plant at camp ground.	Q. M. Gen., Capitol, Trenton.
Ohio	Alliance	Dec. 28, noon.	Bldg. sewage disposal plant; cost not to exceed \$155,000.	Board of Public Service.
Ohio	Newburg	Dec. 29, noon.	Constructing main sewers in various streets.	F. T. Lawrence, Clk. Bd. Pub. Serv.
California	San Francisco	Dec. 29, noon.	Bldg. sewers in Richmond Dist., in 31st avenue.	Marsden Manson, City Engineer.
Kentucky	Louisville	Dec. 31, noon.	Bldg. Sec. F, Beargrass Interceptor; Contract 60: 3,188 ft. rein. concrete sewer, 39 and 33-in., inc. 3,188 ft. earth excav., average cut, 21.2 ft.; 750 cu. yds. concrete; 61,200 lbs. steel.	J. B. F. Breed, Ch. Engr. Service Bd.
Michigan	Muskegon	Jan. 3, noon.	Finishing uncompleted sewer in Dist. No. 7.	B. H. Tellman, City Recorder.
New York	Batavia	Jan. 5, 10 a.m.	Excav. and bldg. sewage well at municipal plant and bldg. add. to city bldg. to house new pumps, etc.	Board of Sewer Comrs.
Michigan	Detroit	Jan. 5, 10 a.m.	Furn. and erect. machinery for sewage pumping station at foot of Park View ave., inc. 2 centrifugal pumps, 100 cu. ft. and one 30 cu. ft. per second; engine, motors, boilers and other apparatus for complete installation.	J. J. Haarer, Comr. Pub. Wks.
South Carolina	Charleston	Jan. 11, noon.	Digging trenches and laying sewer pipes in 2 of 8 sections above Broad st.; other sections later; entire cost, \$300,000.	J. R. Johnson, Pres. Bd. Pub. Wks.
Kansas	Holton	Jan. 12, noon.	Bldg. sewer system and disposal plant, inc. 45,000 ft. 8-in. sewer, 64 manholes, 35 flush tanks, 14,000 ft. 10, 12 and 15-in. sewer, 41 manholes and disposal plant.	Board of Sewer Comrs.
British Col'bia	Prince Rupert	Jan. 19, noon.	Installation of sewerage works.	Minister of Public Works.
Ontario	Toronto	Feb. 15, noon.	Sewer outlet, sewage tanks, supply of sludge valves, c. i. pipe, etc.; bids by registered post only.	Jos. Oliver, Chm. Bd. Control.
WATER SUPPLY				
Ohio	Euclid	Dec. 27, noon.	Laying water mains along Euclid ave., 3 miles long.	Village Council.
Illinois	Bloomington	Dec. 28, 5 p.m.	Remodeling water works, inc. 6,000,000-gal. pump, boilers, etc.	F. H. Lamp, Supt. Water Board.
Michigan	Detroit	Dec. 28, noon.	Furn. and erect. structural steel and iron work for engine room building of new pumping station.	Benj. F. Guiney, Sec'y Water Board.
Philippine Is'ls.	Manila	Dec. 29, 11 a.m.	Installing distribution system of Manila gravity water supply; \$5,000 deposit with each bid.	Municipal Board of Manila.
Illinois	Chicago	Dec. 31, noon.	Furn. and install three 350 h.p. water tube boilers, inc. furnaces, steam piping, foundations, etc., and removing old boilers, etc.; remodel boiler house.	John J. Hanberg, Comr. Pub. Wks.
Minnesota	Foley	Jan. 1, 7 p.m.	Building complete water works system; cost, \$7,000; old bids rejected; O. Claussen, C.E., Nat'l Ger.-Am. Bk. Bldg., St. Paul.	Frank J. Kotsmith, Village Recorder.
Washington	Cathlamet	Jan. 3, noon.	Constructing a complete water system.	City Clerk.
Nebraska	Ft. Robinson	Jan. 3, noon.	New boiler, pumps, repairing pump house, etc.	Capt. F. T. Arnold, Q. M.
Oklahoma	Broken Arrow	Jan. 10, noon.	Constructing water works, to cost \$37,000.	C. A. Fox.
Nebraska	Carroll	Jan. 11, noon.	Constructing water works; previous bids rejected.	City Clerk.
North Carolina	Wilmington	Jan. 12, noon.	Bldg. brick power and filter house, machinery foundations, rearranging machinery, bldg. radial brick stack, concrete storage reservoir, reinforced concrete sedimentation basin, extensions to filter plant, etc.	Hazlehurst & Anderson, Engrs.
Mississippi	Jackson	Jan. 22, 3 p.m.	Boring artesian wells and furnishing machinery for pumping 4,000,000 gals. per 24 hours.	H. Johnson, Gen. Mgr., Wtr. Comm.
Ontario	Toronto	Feb. 15, noon.	Furn. c. i. pipe, iron castings, special tile, etc.	Jos. Oliver, Chm. Bd. Control.
BRIDGES				
Kansas	Wichita	Dec. 27, noon.	Bldg. and repairing County bridges; cost, \$9,000.	Board of County Commissioners.
Nebraska	Hebron	Dec. 28, noon.	Constructing a bridge.	J. C. Strain, Clk. Bd. Co. Comrs.
Washington	Ft. Lawton	Dec. 29, 11 a.m.	Constructing a timber bridge at Fort.	Capt. E. C. Long, Asst. Q. M.
New York	Brooklyn	Dec. 30, 3 p.m.	Repairs and alterations to Breeze Hill bridge, Prospect Park.	Henry Smith, Pres. Park Board.
California	El Centro	Jan. 3, noon.	Bldg. 2 bridges over New river, near Heber.	D. S. Elder, Clk. Bd. Co. Supervisors.
Washington	Chelan	Jan. 3, noon.	Bldg. bridge over Chelan river, to cost \$13,400.	Jos. Godfrey, County Auditor.
New York	Cohoes	Jan. 4, 8 p.m.	Furn. material and erecting 30-ft. span, rolled I-beam bridge, concrete floor, 14-ft. roadway, 3-ft. walk; also necessary sub-structure; G. T. Bolton, City Engr.	Wm. J. Elliott, City Clerk.
California	Merced	Jan. 4, 10 a.m.	Bldg. steel bridge over Merced river road, Dist. No. 4.	P. J. Thornton, Clk. Bd. Superv.
Ohio	Cincinnati	Jan. 7, noon.	Repairing east abutment of bridge over Little Miami river.	Stanley Struble, Pres. Bd. Co. Comrs.

BIDS ASKED FOR

STATE	CITY	RECEIVED UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
BRIDGES—Continued				
Nebraska.....	York.....	Jan. 11, noon.....	Bldg. steel and wooden bridges ordered by County in 1910.....	W. A. Miller, County Clerk.
Texas.....	Dallas.....	Jan. 15.....	Furn. and erect. steel hwy. bridge and viaduct over Trinity river, 5 miles south; span over river 200 ft., with 2,520 ft. of plate girder span of 60 ft. each and one mile of gravel road; J. F. Witt, County Engineer.....	George L. Fearn, County Auditor.
Arizona.....	Florence.....	Jan. 15.....	Building highway bridge over Gila river.....	J. B. Giraud, Tery, Engr., Phoenix
Indiana.....	Indianapolis.....	Jan. 15.....	Bldg. stone and concrete bridge over Pogue's run, Commerce ave.	B. H. Miller, City Engineer.
Manitoba.....	Winnipeg.....	Jan. 18, 11 a.m.....	Removing present superstructure and furn. and erect new one and floor, complete, for Louise bridge over Red river.....	M. Peterson, Sec'y Bd. Control.
LIGHTING AND POWER				
Maryland.....	Ft. Washington.....	Dec. 27.....	Constructing electric light system at Fort.....	Capt. H. L. Pettus, Q.M., TakomaPk
Pennsylvania.....	Norristown.....	Dec. 29.....	Air compressor, engine, dynamo, motor generator, switch board and fire protection for St. Hospital for Insane.....	Bd. Trustees State Hospital.
Maine.....	Portland.....	Jan. 3.....	Electric work and plumbing in new City Hall.....	City Building Commissioner.
North Dakota.....	Fargo.....	Jan. 5, noon.....	Furn. and install 100-light plant at County Hospital.....	Arthur G. Lewis, County Auditor.
North Carolina.....	Wilmington.....	Jan. 12, noon.....	Power station and filter extensions; see "Water Supply".....	C. W. Worth, Chm. Wtr. & Sew. Bd
MISCELLANEOUS				
Massachusetts.....	Boston.....	Dec. 24.....	Erecting brick sanitary and locker building, Columbus ave. playground.....	Robt. S. Peabody, Chm. Park Bd.
Pennsylvania.....	Philadelphia.....	Dec. 28, noon.....	Furn. sprinkling wagons, etc., for 4 parks.....	Fairmount Park Commissioners.
New York.....	New York.....	Dec. 28, 10:30 a.m.....	Furnishing 21,000 ft. underground lead-covered cable for fire alarm telegraph; also manual transmitter.....	N. J. Hayes, Fire Comr.
New York.....	Albany.....	Dec. 28, noon.....	Contract No 44, Erie Canal Section, 5.....	F. C. Stevens, State Supt. Pub. Wks
New York.....	New York.....	Dec. 28, noon.....	Furn. granite stone for bulkhead in river wall; Cont. 1204; also for removing and repairing and extending pier at foot of Morton st., East river, pier 42; furn. rip-rap, etc.....	Allen N. Spooner, Comr. of Docks
New York.....	New York.....	Dec. 30.....	Constructing \$40,000 brick drain in Van Cortlandt Park.....	Henry Smith, Pres. Park Board.
Manitoba.....	Winnipeg.....	Dec. 31.....	Furn. 18,000 posts, and manufacture and delivery of 42 miles of woven wire fence and erecting same.....	M. Peterson, Sec'y Bd. Control.
Oregon.....	Portland.....	Jan. 3.....	Bldg. garbage crematory for 150 tons refuse of all kinds per day; 2 units preferred; also for 500 h.p. steam generating plant in connection therewith.....	C. H. Wheeler, City Health Office.
New York.....	Riverhead, L. I.....	Jan. 3.....	Bldg. \$100,000 County jail; bids as whole or separate.....	W. J. Beardsley, Arch., Poughk'sie.
Louisiana.....	Jena.....	Jan. 5.....	Bldg. Court House and Jail; Emile Weil, Arch., New Orleans.....	H. E. Hartner, Pres. Police Jury.
Wisconsin.....	Kenosha.....	Jan. 8, 9 a.m.....	Bldg. County jail, complete; Jos. Lindl, Arch., 312 Main st.....	Russell H. Jones, County Clerk.
Pennsylvania.....	Franklin.....	Jan. 11, 2 p.m.....	Bldg. \$50,000 County jail; Charles & Bailey, Archs., Oil City.....	E. K. Smiley, Clk. Bd. Co. Comrs.

STREET IMPROVEMENTS

Mobile, Ala.—Board of Public Works is considering plans for paving Davis and Springhill aves.; cost \$178,965.—Wright Smith, Engineer.

Montgomery, Ala.—Council has ordered paving of Wilkerson and other streets; also sidewalks on Jefferson Davis ave., and on Union and Clifford sts.

Colusa, Cal.—Colusa County bond election, to decide question of issuing bonds in sum of \$600,000 for purpose of building system of permanent good roads throughout county has been postponed until February 6; it previously had been set for December 21.

Lodi, Cal.—Improvement of business streets is being considered.

Oakland, Cal.—Council has directed City Engineer to prepare plans and specifications and submit estimate of cost for improvement of various streets as recommended by Board of Works.

Pasadena, Cal.—Council has ordered paving of South Broadway.

San Bernardino, Cal.—County Commissioners are considering plan for 7-mile highway through Mill Creek Canyon to Forest Home; road will be built by F. J. Culver, owner of Forest Home.

San Bernardino, Cal.—County Supervisors have advertised for bids for construction of macadam road between city limits of Redlands, Orange st., to south bridge over Santa Ana; grading is already under way.

San Francisco, Cal.—Park Commissioners have directed Superintendent McLaren to prepare plans and specifications for proposed roads and driveways in new park at 33d ave.

Boulder, Col.—County Commissioner Clark Gilbert is planning macadamizing of roads leading to coal camps from valley road.

Colorado Springs, Col.—Council is considering laying of about 140,000 sq. yds. of paving in business center.—W. Wagener, City Engineer.

Washington, D. C.—Construction of road between this city and Leesburg, Va., is being considered.—H. B. Hutchinson, Washington Good Roads Association, State Road Commissioner St. Julian Wilson and Westmoreland Davis, Leesburg, are interested.

Bradentown, Fla.—Bids will be received by County Commissioners Jan. 8 for \$250,000 county good road bonds.

Fort Pierce, Fla.—County has voted \$200,000 bonds for system of rock roads.

St. Augustine, Fla.—Council has decided to pave portion of Seville st. with vit. brick.

Bloomington, Ill.—Local Improvement Board is considering laying of small vit. block pavement on Gridley st.—City Engineer Elmer Folsom, Secretary.

Cairo, Ill.—City Engineer Plum has estimated cost of paving Spring st. at \$56,476.85; 25,712 yds. of brick pavement will be laid and 11,506 lin. ft. of combined guttering and curbing.

Danville, Ill.—Board of Supervisors has petitioned Agricultural Department, Washington, to send expert road engineer and builder into this county to make investigation and estimate the cost, per mile, of a highway to be constructed of crushed stone and cement or other enduring materials.

Moline, Ill.—City is considering improvement of 15th st. with asphalt, 16th st. with asphalt and 3d ave., from 1st to possibly 34th st., with brick.

Peoria, Ill.—Board of Local Improvements has adopted resolution for paving Glendale ave.

Delphi, Ind.—Monroe Township did not let contract for grading, macadamizing and draining certain highways.—M. G. Haun, Auditor Delphi County.

Indianapolis, Ind.—Board Public Works has adopted resolution providing for paving of N. Meridian st.; cost about \$45,000.

Indianapolis, Ind.—Board of Public Works has confirmed resolution for cement walks and grading on Kealing ave.

Ames, Ia.—Council has appointed a committee to look into matter of paving.—J. Q. Wickham, City Engineer.

Mason City, Ia.—City is considering brick paving next spring.—J. H. McEwen, City Clerk.

Muscataine, Ia.—Paving of Grandview ave., South Muscatine, is being urged.

Arkansas City, Kan.—City will expend \$12,000 during next few months for construction of concrete sidewalks with curb and guttering.

Fort Scott, Kan.—Plans have been prepared by City Engineer William McElroy for extension of Margrave st.

Lawrence, Kan.—Council has decided to pave New York st.—F. D. Brooks, City Clerk.

Wichita, Kan.—Paving of First st. is being considered.

New Orleans, La.—Council will instruct City Engineer to prepare plans and specifications for and Comptroller be directed to advertise for bids for repaving St. Charles ave. with bitulithic; General Taylor st. with concreting clay gravel; Sycamore st. with granitoid; Milan st. with bitulithic. For paving North Dupre st. with granitoid; North Cortez st. with granitoid; for laying Schillinger or cement sidewalks on Nelson and Mobile sts.

Denton, Md.—County Commissioners Farrell, Wright and Carey have agreed with State Roads Commission to undertake construction of State highway through Caroline County, and Engineers and Draftsmen are finishing up surveys of piece of road below Denton, upon which construction work will be started by the County Commissioners early in spring; steam roller

will be purchased by the County and added to its present road-building equipment.

Hardwick, Mass.—Town will vote on acceptance of \$30,000 gift for improving highways leading into center village, town common and cemeteries.

Ford City, Mich.—Village has decided to pave stretch of two miles; contracts will be let for work to start in spring.

Saginaw, Mich.—Owen st. will be paved with asphalt and tar macadam; Board of Public Works will advertise for all kinds of paving material to be used during year.

Greenwood, Miss.—Leflore County will issue \$100,000 good roads bonds; Lauderdale County is considering \$250,000 issue.

Vicksburg, Miss.—All bids received Dec. 6 for paving Walnut, Drummond and Veto sts., in all 15 blocks, have been returned to bidders unopened.—C. R. Twiss, City Engineer.

Excelsior Springs, Mo.—Good Roads Association is considering preliminary plans for construction of Excelsior Springs Pike.

Mexico, Mo.—Plans will be prepared by City Engineer E. F. Ketter for brick paving, on concrete foundation.—Wallace Dearing, City Clerk.

Florence, Neb.—Council has passed ordinance for issuance of \$55,000 bonds for paving of Main st.

Lincoln, Neb.—Plans are being prepared for laying pavement on North Kickapoo st.

Norfolk, Neb.—Paving of various streets in spring is being considered.

Omaha, Neb.—Paving of 26th st., paving and curbing B st. and grading O st. is being considered.

Seward, Neb.—Council has approved plan to do great deal of paving of streets with brick; work will include public square and streets to stations.

New Brunswick, N. J.—State Road Department, out of automobile license fund for road repairs, will resurface road from Lakewood to Point Pleasant, in Ocean County; distance about nine miles. State Road Commissioner Gilkyson is also arranging to rebuild ten miles of road between Tom's River and Lakewood.

Alamogordo, N. M.—Territorial Good Roads Commission, Governor Curry, Chairman, is investigating project of building public highway from this city to Flagstaff, Ariz.

Buffalo, N. Y.—City has sold \$371,966 Elmwood ave. improvement bonds.

Buffalo, N. Y.—City is considering paving or repaving of 18 streets.—Wm. B. Wright, Chairman Special Committee.

Fulton, N. Y.—Board of Public Works has decided to improve North 1st st.

New York, N. Y.—Bids will be received Dec. 23, 3 p. m., by Park Board, for regulating, grading and laying rock asphalt mastic walks and making other improvements in the grounds adjacent to new comfort station opposite Grant's Tomb, in Riverside Park.—Henry Smith, President.

Greensboro, N. C.—Guilford County will construct model road; cost \$1,000.

New Bern, N. C.—Board of Aldermen has sold \$50,000 pavement bonds to J. B. McCrary Co., Atlanta, Ga.

Ashtabula, O.—Tillotson & Walcott Co., Cleveland, bid in \$24,300 Ashtabula paving bonds at \$25,364.75 and \$12,000 sewer bonds at \$12,154.45.

Bellefontaine, O.—Council has passed an ordinance providing for paving South Main st.

Cincinnati, O.—City Engineer Sundmaker has had plans completed to reconstruct entire length of Elberon ave.; contract will be let in February.

East Liverpool, O.—Board of Public Service has directed City Engineer George to prepare plans and specifications for paving Center ave.

Hamilton, O.—County Commissioners are preparing plans to construct two miles of roadway on Millville pike, under direction of the State Commissioners of Highways, at cost of \$19,927.53.

Leetonia, O.—Council has decided to pave Columbia ave. next summer.

Mansfield, O.—Council has decided to improve South Main st. and Helen ave.—W. S. Bradford, Clerk.

Marion, O.—Marion County Board of Commissioners will construct 14 miles of macadam roads next year.—John Edwards, Chairman.

Youngstown, O.—Council is considering paving of South ave. and three other streets.

Ardmore, Okla.—Council has decided to pave portion of D st.—Jas. A. Cotner, Mayor.

Norman, Okla.—Council has decided to pave in all 50 blocks and will advertise for bids on both kinds of pavement—rock asphalt and petrolium, or rather, more of an asphalt-macadam pavement, and then accept whichever bids were thought best.

Forest Grove, Ore.—County Court is urging building of permanent rock roads.

Hood River, Ore.—Auto road from Hood River to Portland will be constructed during coming summer.

La Grande, Ore.—Council is considering paving of three miles of streets.

Altoona, Pa.—Legislation will be introduced in Councils providing for submission at February election of proposition for loan of \$100,000 for street paving purposes.

Duquesne, Pa.—Council is considering \$150,000 bond issue; street, sewer and other improvements are needed.

Hazleton, Pa.—Highway Committee has recommended \$2,850 appropriation for purchase of steam road roller and \$400 for street sprinkler.

Jersey Shore, Pa.—Town will pave number of streets after Jan. 1.

McKeesport, Pa.—Mayor Arthur has signed ordinance for improvement of Walnut st.

Philadelphia, Pa.—Citizens will vote at February election on \$8,000,000 permanent loan; \$100,000 will be for macadamizing streets, \$200,000 for repaving streets with no railway tracks, \$150,000 for grading streets, \$300,000 for resurfacing streets and \$1,000,000 for proposed parkway.

Philadelphia, Pa.—Bids will be received Dec. 23 for following work: Sch. A. to F., inclusive—Repairs to paved streets, including asphalt, spreading and rolling broken stone on roads occupied by tracks of P. R. T. Co.; repairs to asphalt and granolithic streets; setting crossings, curbs, etc. Sch. L—Paving and repairing sidewalks. Sch. N—Maintenance of unpaved and macadamized highways, small bridges, etc. Sch. P—Repaving tramway and small streets with improved pavement. Sch. J—General repairs to bridges. Sch. I—General repairs to sewers. Sch. Q—Sprinkling macadamized roads, etc.—G. R. Stearns, Director Department Public Works.

Pittsburg, Pa.—City will begin building asphalt plant on Peabody site, Hamilton ave., as soon as plans can be prepared. Engineer will be engaged shortly to go over site; work on plant can be begun early in spring; money to buy site and build the plant has been available for over a year.

Pittsburg, Pa.—Councils will be asked to finance by special bond issue administration's extensive plans for widening thoroughfares in downtown section.

Rochester, Pa.—Council has passed ordinance providing for paving Hinds st.

Wilkes-Barre, Pa.—Proposed extension of Elizabeth st. will cost \$6,500.

Woonsocket, R. I.—Council has passed resolution appropriating \$4,800 for building highway from River st. to Blackstone River; distance of about 300 ft.; also erection of wooden bridge 20 ft. wide across Blackstone River.

Chapin, Tex.—Hidalgo County has voted \$100,000 bonds for road construction.

Childress, Tex.—City is considering bond issue for street paving; Main and 2d sts. will be paved for distance of three blocks.

Dallas, Tex.—Residents of Holmes, Grand and Harwood sts. have petitioned for bitulithic paving.—Wm. Doran, Street Commissioner.

El Paso, Tex.—Plans and specifications for construction of 2,200 ft. of road from Clint depot to county road will be drawn and bids for construction advertised; Engineer Meadows will prepare plans for Clint Fabens road.

Greenville, Tex.—Paving of Lee st. is being urged.

Lake Arthur, Tex.—Citizens have voted \$20,000 street improvement and water works bonds.

San Augustine, Tex.—San Augustine County is considering construction of 25 to 30 miles of road.—W. C. Ramsey, County Judge.

Charlotte Court House, Va.—Charlotte County Supervisors are considering construction of 10 miles of gravel and macadam road.—T. A. Proctor, Jr., Drakes Branch, is interested.

Nottoway, Va.—Nottoway County Supervisors have petitioned Walter A. Watson, County Judge to order election on \$80,000 bonds for road improvements.

Petersburg, Va.—Council has adopted Street Committee's extensive program, and referred to the Finance Committee matter of arranging for \$225,000 bond issue to carry out its plans for paving dozen or more streets during next year.

Portsmouth, Va.—Board of Supervisors is considering construction of public road to Craney Island.

Portsmouth, Va.—Street Committee will recommend to Council issuance of \$200,000 paving bonds, and paving of nine streets.

Waynesboro, Va.—City will begin about February on construction of proposed macadamized road over Blue Ridge Mountains; length 10 miles; cost \$450,000.—J. E. Cook, Mayor.

Chehalis, Wash.—City will expend \$250,000 next year in paving streets.

Seattle, Wash.—Paving of Western ave. with brick or granite is being considered.

Appleton, Wis.—Street Committee has recommended paving of six streets.

Green Bay, Wis.—George st. residents have petitioned for paving of thoroughfare.

Oconomowoc, Wis.—Paving of Milwaukee st. with concrete is being considered.

Oshkosh, Wis.—City will raise \$30,000 by bonds for street work for coming year.

Racine, Wis.—Board of Aldermen has adopted resolution calling for plans for paving West blvd. with macadam.

BIDS RECEIVED AND CONTRACTS AWARDED

Pine Bluff, Ark.—E. J. Wetterson, of Chicago, has been awarded contract for doing paving in District No. 26.

San Bernardino, Cal.—Contract for paving D st. has been awarded to B. F. Ford Co., Los Angeles, for \$25,514.

Streator, Ill.—Two paving contracts were awarded by the Board of Local Improvements: John S. Baer secured the North Park st. job, a stretch of continuous paving almost a mile in length, at the contract price of \$19,000; Smith & Swartz secured the contract for the South Illinois st. paving, a stretch about a half mile in length from Hall st. to the county line for \$11,822.

Indianapolis, Ind.—Low bids were received as follows by the Board of Public Works: South side 28th st., from Meridian st. to Illinois st., cement walks and curbs, J. E. Sullivan, \$1.32; 28th, from Meridian to Illinois st., graded roadway, earth or cinders, J. E. Sullivan, 34c.

Pittsfield, Mass.—Ley Construction Co., Springfield, Mass., has secured contract for grading at the Stanley plant.

Scranton, Miss.—Jackson County Supervisors have awarded contract to Davis & Thompson, of Scranton and Montgomery, Ala., at \$304 per mile to construct and maintain for two years road H in District No. 3, from Scranton to Alabama State line; distance 13 miles.

St. Joseph, Mo.—Board Public Works, recently awarded contract for resurfacing with asphalt portion of Francis st. to Metropolitan Construction Co. at \$1.35 per sq. yd.

Atlantic City, N. J.—It will cost \$18,627 to widen boardwalk between Texas and Albany aves. with concrete; contract has been given to Wilbert Beaumont; sum is \$1,300 more than the cost of widening the structure with timber, according to figures submitted in Council. Mr. Beaumont also got contract for placing concrete piling under present boardwalk, wherever necessary at a price of \$19.21 per pile.

Bids for timber construction were as follows: C. J. Murland, construction per ft., \$6.90; railing, 18c.; posts, \$5.

Wilbert Beaumont, per ft., \$5.95; railing, 20c.; posts, \$2.

E. L. Bader, per ft., \$5.73; railing, 3c.; posts, \$5.

Gloucester City, N. J.—Council has opened bids for street paving as follows:

Brick.

John F. Kerwin & Co., New Brunswick, grading and placing 4-in. concrete foundation, 53c. per sq. yd.; 5-in., 67c.; 6-in., 75c.; completing pavement with Mack brick, \$1.34 per sq. yd.; McAvoy brick, \$1.36; Layton, \$1.40; Metropolitan brick, \$1.53.

P. A. Stewart Co.—For grading and placing McAvoy brick on 4-in. concrete foundation, \$1.89% per sq. yd.; 5-in., \$1.98; 6-in., \$2.09; North Clearfield brick, 4-in. foundation, \$1.98%; 5-in. \$2.07; 6-in., \$2.18; Metropolitan brick, 4-in. foundation, \$2.16%; 5-in., \$2.25; 6-in., \$2.36.

Field, Barker & Underwood Co., Philadelphia—Grading and placing 4-in. concrete foundation, 76c. per sq. yd.; 5-in., \$2c.; 6-in., \$1.03; finish with Mack block, \$1.37; McAvoy brick, \$1.45; Metropolitan brick, \$1.53; Patton brick, \$1.37.

B. F. Sweeten & Son, Camden—Grading and constructing 4-in. foundation, 50c. per sq. yd.; 5-in., 58c.; 6-in., 68c.; finish with Shawmut brick, \$1.47 per sq. yd.; Metropolitan brick, \$1.66; McAvoy brick, \$1.47; Baltimore brick, \$1.42; Mack brick, \$1.45.

Aaron Ward, Camden—Constructing 4-in. concrete foundation, 47c. per sq. yd.; 5-in., 53c.; 6-in., 59c.; finish with Baltimore brick, \$1.59 per sq. yd.

J. F. Shanley Co., Philadelphia—Grading and constructing 4-in. concrete pavement with McAvoy brick, \$2.33; 5-in., \$2.43; 6-in., \$2.81; with Mack brick, 4-in. foundation, \$2.33; 5-in., \$2.43; 6-in., \$2.53.

Filbert Paving & Constructing Co., Philadelphia—Grading and constructing 4-in. concrete foundation, 67c.; 5-in., 76c.; 6-in., 88c.; finished with Glengarry brick, \$1.33; Pennsylvania brick, \$1.29; Grafton brick, \$1.45; fire clay brick, \$1.48.

United Paving Co., Philadelphia—Grading and constructing 4-in. concrete foundation, 58c.; 5-in., 68c.; 6-in., 78c.; finish with Metropolitan brick, \$1.97; Bessemer brick, \$1.97; McAvoy brick, \$1.79; Clearfield, \$1.70; Grafton, \$1.70; American, \$1.71; Glengarry, \$1.68; Shawmut, \$1.70; Bitulithic pavement, same firm—Bitulithic with Warren pavement, \$1.85; Warrenite, \$1.95; macadam street 5x7 depth, 76c.; 8x10 depth, \$1.01; making extra earth excavations greater than specifications, 4½c. per cu. yd.; figures are based on contract of more than 15,000 sq. yds.

Macadam.

George W. Banks, Wildwood—5 to 7-in. foundation, 74c. per sq. yd.; 8 to 10, 90c.; extra earth excavations, 22c. per sq. yd.; asphalt, 5 to 7 depth, 96c.; 8 to 10, \$1.12; extra excavations, 22c. per cu. yd.

J. F. Shanley—8 to 10 depth, 96c. per sq. yd.; 5 to 7, 75c.; extra excavations, 25c. per cu. yd.; Amiesite with telford foundation, \$1.07 per sq. yd.; extra excavations, 20c. per sq. yd.; macadam road with Amiesite, 8 to 10, \$1.44 per sq. yd.; extra excavations, 28c.; 5 to 7, \$1.24.

J. F. Kerwin & Co.—Macadam, 5 to 7 depth, 77c.; 8 to 10, \$1.05 per sq. yd.; extra excavations, 50c.

P. A. Stewart Co.—Macadam, 5 to 7 depth, 74c. per sq. yd.; 8 to 10, 90c.; extra excavations, 25c.

B. F. Sweeten, Camden—Macadam, 5 to 7 depth, 72c. per sq. yd.; 8 to 10, 92c.; extra excavations, 32c.; asphalt with macadam foundation, \$1.08; with Amiesite mixture, \$1.25; bituminous tarva, 98c.

P. A. Stewart—Paving with Amiesite, \$1.19% per sq. yd.; with 6-in. rolled stone foundation, \$1.23%; 6-in. broken stone, \$1.15.

Filbert Paving Constructing Co.—Filbertine paving, 4-in. concrete foundation with 1½ in. Filbertine wearing surface, \$1.48; 5-in., \$1.68; 4-in. broken stone foundation, \$1.44; 5-in., \$1.56; 6-in., \$1.68; resurfacing with Filbertine, \$1.40 per sq. yd.; extra excavations, 32c.

Asphalt.

Barber Asphalt Co.—With impregnation 6-in. foundation, \$1.24 per sq. yd.; extra excavations, 65c. per cu. yd.; sheet asphalt, grading and constructing, 4-in. foundation, 64c.; 5-in., 75c.; 6-in., 85c.; finishing with asphalt, \$1.17; extra earth excavations, 65c.

Bids, on motion of Mr. Thompson, were referred to Street Committee for scheduling.

Las Cruces, N. M.—Bids for paving Las Cruces ave. and Griggs st. have been opened and O. H. Brown, city, was awarded the contract; price to be paid for construction is \$7,450.

Buffalo, N. Y.—Following are lowest bids opened Dec. 8 by Department of Public Works for paving with asphalt Grimes and Reimann sts.: H. P. Burgard, 560 Walden ave., \$24,000; macadamizing N. Park and Saranac aves.; Jos. F. Stabell, 1127 Niagara st., \$7,315 and \$13,490, respectively, and

Norwalk ave., with asphalt: German Rock, Asphalt & Cement Co., D. S. Morgan Bldg., \$11,270.

Cincinnati, O.—Board Public Service Dec. 7 awarded contract for paving portion of Craig ave. to Connelly Construction Co. for \$9,879.

Columbus, O.—Contracts for the improvement of a dozen streets, to cost approximately \$80,000, were awarded by the Board of Service. However, little, if any, of the proposed work will be begun before spring. The largest single contract was for the improvement of Morrill ave., from High st. to Parsons ave., \$24,121.50, awarded to W. M. Graham. Other contracts were let as follows: Locust st., High to 4th, \$1,371. H. E. Barthman; Mink st., Long to Hawthorne, \$2,043.75, Geigle, Barnes & Co.; Price ave., High to Dennison, \$8,460.50, H. J. Shaw; Thomas st., Sandusky to Hawkes, \$13,222, Geigle, Barnes & Co.; 22d st., Oak to Main, \$8,067.50, to A. J. Pugh; Wilcox st., High to East ave., \$2,454.50, Budd & Bartley; Detroit ave., 4th to East ave., \$1,848, J. C. Beasley; Ducksberry ave., Indianapolis to Summit, \$3,685.40, Budd & Bartley; Elm st., Front to Ludlow, \$1,283.50, W. M. Graham; 5th ave., Perry to Tisdale, \$3,656.75, H. J. Shaw; 5th ave., Tisdale to Olentangy River, \$6,885.50, H. J. Shaw. Oak st. will be improved with California asphalt.

St. Clairsville, O.—Belmont County Commissioners Dec. 8 awarded contract for paving Bellaire and Shadyside pike to W. J. Berry, of Powhattan, for \$25,000.

Toledo, O.—The Board of Public Service has rescinded its action whereby the contract for paving Columbus st. was let to Garrigan Brothers, for carbo-vit, and has let the contract to Tansey & Watters, on brick.

Muskogee, Okla.—Phoenix Construction Co. has been awarded contract for paving East Side blvd., Trinidad Lake asphalt to be the surfacing material; contract price was lowest received and amounted to \$50,798.57.

Knoxville, Tenn.—Contracts for the construction of an 18-in. storm sewer on South 9th st. and a sidewalk on East Jackson ave. were awarded by the Board of Public Works; the first to the firm of Long & Price and the second job to Moreland & Moses; this firm agreed to remove all necessary dirt and to construct the sidewalk for 77c. per sq. yd.; this was $\frac{1}{2}$ c. lower than the bid of R. L. Moreland.

Seattle, Wash.—Bids were opened Dec. 3 by Board of Public Works for paving Jackson st., and contract has been awarded to MacAdam & Co., city, at following bid: Fixed estimate, \$2,700; clearing and grubbing, lump sum, \$500; 8,500 cu. yds. subgrading, 43c.; 8,070 lin. ft. curb., straight granite, \$1.43; 413 lin. ft. curb., curved granite, \$1.73; 44 lin. ft. curb., reset, 60c.; 21,167 sq. yds. brick paving, \$2.54; 25 sq. yds. granite paving, \$4; 242 sq. yds. alley crossings, brick, \$2.54; 5,000 sq. yds. 4-in. gravel base, 15c.; 670 sq. yds. concrete walks, \$1; 677 lin. ft. wood stop, 40c.; 4 catch basins, single inlet, \$65; 2 catch basins, double inlet, \$70; 34 single inlets, to be set, \$8; 8 single inlets, moved, \$6; 33 catch basins and manhole covers adjusted, \$2.50; 2,000 lin. ft. 3-in. tile drain, 20c.; 25 M ft. new lumber, \$18; 20 M ft. old lumber, \$6; 17 brick gate chambers, \$55; 110 lin. ft. 8-in. pipe sewer, \$1.45; 110 lin. ft. 10-in. pipe sewer, \$1.63; 4 3 $\frac{1}{2}$ -ft. manholes, each, \$70; 426 lin. ft. 6-in. side sewer connections, \$1.25; 912 lin. ft. 30-in. c.-l. pipe "A," to be laid only, \$1.50; 1,500 lin. ft. 12-in. c.-l. pipe "A," \$2.27; 72 lin. ft. 12-in. c.-l. pipe "B," \$2.55; 450 lin. ft. galvanized pipe, 25c.; 2,500 lbs. special castings, 6c.; total, \$86,067. Total of other bids: Paul Steenstrup, Seattle, \$94,140; Coast Concrete Co., Pacific Block, Seattle, \$91,777, and S. Norville, Seattle, \$94,994.

Tacoma, Wash.—Commissioner of Public Works H. J. McGregor has awarded contract to Barber Asphalt Paving Company for paving Yakima ave.; successful bid, \$98,671, was nearly \$30,000 below the engineer's estimate and over \$3,000 less than lowest bid, that of the Independent Asphalt Paving Company, its keenest competitor. Watter Bros. bid \$102,881.

There were three other bids as follows: Coast Contracting Company, \$108,777; Keasal Construction Company, \$114,660; Lister Construction Company, \$109,740.

Washington st. will have new cement sidewalks to be built by W. H. Dobson for \$1,912. There were 12 bids on this work, most of them ranging from \$2,000 up to \$2,674, the highest.

Bulkhead to be built on the north side of the low service reservoir will cost city \$6,945. Contract was awarded to Gust Beck. There were 11 other bids received; Coast Contracting Company bid close to the successful figure; company offered to do the work for \$6,992.

SEWERAGE

Anaheim, Cal.—Construction of sewer system is being considered.—Edw. B. Merritt, City Clerk.

San Bernardino, Cal.—Council has ordered construction of 6-in. sewer on Mt. Vernon ave.—Harry Allison, City Clerk.

San Francisco, Cal.—Plans have been completed for construction of Section "A" of North Point main sewer and section "C" of Channel st. sewer; plans are nearly completed for sewers for Mission Flats District.

Santa Clara, Cal.—City has had plans completed for construction of proposed new sewer system.

Colorado Springs, Col.—Council is considering enlarging of storm sewers in business district; cost about \$60,000.—W. Waggener, City Engineer.

Kissimmee, Fla.—Citizens will vote on \$50,000 sewerage and water works bonds.

Pensacola, Fla.—Finance Committee has recommended \$1,125 appropriation for sewer work on Garden and other streets.

Quincy, Fla.—City will spend \$80,000 next year on sewerage and other improvements.

Lockport, Ill.—Plans have been completed by Engineer Hugh M. Price for construction of sewers.

Pekin, Ill.—Plans are being prepared by John W. Alvord, Chicago, for sewers for north side.

Quincy, Ill.—Council as Committee of Who's voted to accept plans for South Side sewer system, as prepared by W. S. Shields, of Chicago.

Rushville, Ill.—Engineer A. E. Phillips, Chicago, Ill., has about completed plans for construction of sewerage system for this city.

Michigan City, Ind.—Council has decided to construct sewer in Willard ave.

Essex, Ia.—Construction of sewer system is being considered.—Dr. Kinney, Mayor.

Mason City, Ia.—City is considering construction of sewers next spring.—J. H. McEwen, City Clerk.

Atchison, Kan.—Citizens will vote on building of storm water sewer in Dist. N and a reinforced concrete arch culvert across White Clay Creek on 4th ave.—Fred Giddings, City Engineer.

Atchison, Kan.—Plans are being prepared by City Engineer S. K. McCrary for monolithic or reinforced concrete sewers in Sewer District X; also at St. Benedict's College; total cost \$65,000.—A. Hawk, City Clerk.

Kinsley, Kan.—Citizens are urging installation of sewer system.

Parsons, Kan.—Plans have been prepared by Engineers M. A. Earl & Co., Muskogee, Okla., for septic tank and filter beds.—T. B. J. Wheat, City Clerk.

Riverside, Kan.—City Commissioners are considering ordinance providing for construction of sewer system.

Fulton, Ky.—City will soon install complete sewer system; cost \$75,000.

New Orleans, La.—Sewerage and Water Board will install some 84 blocks of sewers which have been petitioned for.

New Bedford, Mass.—Construction of intercepting sewer is being considered.—Wm. F. Williams, City Engineer.

Jackson, Mich.—Will construct a 10-in. sewer.

Oakwood, Mich.—Plan to equip district with sewers is being considered.

Saginaw, Mich.—Will extend sewer system.

Saginaw, Mich.—Bids will be received about Dec. 24 for construction of Ellsworth st. sewer; cost about \$10,000.—D. C. Bell, City Clerk.

Trenton, Mich.—Village Council is again considering advisability of constructing sewer system.

Wyandotte, Mich.—Council is considering advisability of extending sewer system to western part of city.

Hermann, Mo.—Citizens have defeated proposition to issue bonds for constructing system of sewers; another election will be held.

East Orange, N. J.—Draining of Main st. by two pipe lines, cost \$29,000, is being considered.—F. A. Reimer, City Engineer.

Irrington, N. J.—Council has ordered construction of sewer in 17th ave.—W. L. Glorieux, Mayor.

Las Cruces, N. M.—Acting Mayor R. L. Young is urging necessity for system of sewage disposal.

New Rochelle, N. Y.—Bids will be received Dec. 23, 8 p. m., by Board of Public Works for construction of sewer in Congress st.—Richard Lathers, Jr., Chairman.

Syracuse, N. Y.—Sewer Board is considering plans for proposed Harbor Brook intercepting sewer and for disposal plant.

Akron, O.—Council has passed ordinance directing Service Board to have plans prepared for relief sanitary sewer from Falor st. and sanitary sewer on Wildwood st.

Ashtabula, O.—City will construct sewers from Strong st. through Mill and to Hope sts. and in South st.

Canton, O.—Cost of East Lake st. sanitary sewer has been estimated at \$1,131, and the Worley ave. improvement at \$2,837.

Cincinnati, O.—Council has decided to improve by sewerage Waverly ave. and Blaine rd.; cost \$7,649.

Sandusky, O.—Plans have been prepared for rebuilding 2,500 ft. of 10, 12 and 15-in. sewer in Franklin st.; cost \$3,000.—C. M. King, City Engineer.

Altus, Okla.—Council is considering election on \$200,000 bonds for building sewers and extending light and water systems.

Clinton, Okla.—Contracts will soon be let for construction of sewer system.—C. C. Smith, City Clerk.

Klamath Falls, Ore.—City has sold \$40,000 sewer bonds to E. H. Rollins & Sons, Boston, for \$40,064; work of laying sewers will begin at once.

Milwaukee, Ore.—City is considering issuance of \$75,000 bonds for construction of sewer system and improvement of principal streets.

Duquesne, Pa.—Council is considering \$150,000 bond issue; sewer, street and other improvements are needed.

Ellwood City, Pa.—Citizens will vote Feb. 15 on \$10,000 bonds for constructing sewers in the city and \$30,000 for construction of the 5th st. subway.

Harrisburg, Pa.—Council has finally passed ordinance for construction of sewer in 15th st.

Mt. Oliver, Pa.—Bids will be received Dec. 23, 8 p. m., for construction of 11 $\frac{1}{2}$ miles of sanitary sewers.—Wm. McClurg Donley, St. Clair Savings and Trust Co. Bldg., Brownsville rd. and Bausman st., Knoxville, Borough Engineer.

Northumberland, Pa.—Site will at once be secured for installation of sewage disposal plant.

Philadelphia, Pa.—Citizens will vote in February on \$8,000,000 permanent loan; \$150,000 will be used for branch sewers, \$250,000 for main sewers and \$50,000 for completion of Cohock Sink sewer.

Philadelphia, Pa.—Council is considering construction of sewers in three wards.

Upland, Pa.—Borough is in need of sewerage facilities.

Charleston, S. C.—Mayor Rhett and Health Officer Green have ordered some 260 householders to make connections with sewer drains or have the work done by city, under pain of paying costs.

Sioux Falls, S. D.—Sewerage Engineer J. W. Johnston has estimated cost of extension of Central sewer at \$20,000.

Childress, Tex.—City is considering bond issue for sewer construction.

Dallas, Tex.—City Commissioners have ordered bids advertised for laying 6-in. sanitary sewer in Pacific ave.; also for one in block between Ewing, Lancaster and 4th sts., Oak Cliff.

El Paso, Tex.—Council has adopted resolution to purchase land along river for sewage disposal plant, stables and garbage incinerating plant.

Houston, Tex.—Plans have been prepared by Engineer F. L. Dormant for proposed sanitary sewers to be laid through Second and portion of Third Ward.

Marshall, Tex.—Extension of trolley service to all parts of city is being urged.

Palestine, Tex.—City Commissioners are considering construction of 15,000 additional feet of sewer pipe.

Petersburg, Va.—Board of Aldermen has appropriated \$1,000 for septic tank at almshouse.

Petersburg, Va.—Construction of 8-in. terra cotta sewer on Shepherd st., cost \$1,400, is being considered.

Hoquiam, Wash.—Specifications have been completed for construction of trunk sewer; cost \$50,000.

Spokane, Wash.—Council has instructed Board of Public Works to prepare plans for sewerage four streets.

BIDS RECEIVED AND CONTRACTS AWARDED

Monterey, Cal.—E. Dyer & Co., San Francisco, have secured contract for constructing Clay st. storm sewer.—J. Otis Burrage, 3400 Washington st., San Francisco, Consulting Engineer; H. D. Severance, City Engineer.

Oakland, Cal.—Contracts for the following sewer work were awarded as follows: Sewering East 31st st., from 14th ave. to a point 25 ft. west of the eastern boundary line of the city, to C. W. Cross; Acton pl., to E. Schumacher; 29th st., from Broadway easterly, to E. H. Dwyer; 15th st., from Madison to Jackson st., to John Geary; Castro, Jefferson, Grove and 14th southerly, also 14th st., from Clay to Castro st., to Piedmont Paving Co.

South Pasadena, Cal.—The City Trustees

Minneapolis, Kan.—Bids received on sanitary sewer system, for which R. J. & W. M. Boyd Con. Co., Kansas City, Kan., was awarded contract as stated last week.—Burns & McDonnell, Engineers, Kansas City, Mo.

	Quantities	Reed & Tripp, Clay Center, Kan.	Freeborn Eng. & Con. Co., Kansas City, Mo.	Katz-Craig Con. Co., Omaha, Neb.	L. H. Lyon & Co., Salina, Kan.	Engineer's Con. Co., Webb City, Mo.	P. A. Johnson, Kansas City, Mo.	Hartman Br. & Con. Co., St. Joseph, Mo.	F. A. Funk Construction Co., Joplin, Mo.	R. J. & W. M. Boyd Con. Co., Kansas City, Kan.
Excavation under 6'.....	11,280	\$0.22	\$0.17	\$0.16	\$0.17	\$0.20	\$0.17	\$0.18	\$0.21	\$0.20
Excavation between 6' and 8'.....	11,515	.30	.25	.25	.37	.34	.28	.30	.26	.30
Excavation between 8' and 12'.....	8,355	.60	.44	.45	.53	.50	.43	.50	.40	.30
Excavation over 12'.....	915	.90	.74	.70	.85	.80	.85	.80	.70	.60
Rock Excavation.....	2,114	3.00	3.00	3.00	3.80	3.50	3.30	4.00	3.00	2.75
8" Sewer Pipe.....	22,960	.22½	.20½	.19	.25	.20	.21	.27½	.21	.20
10" Sewer Pipe.....	6,684	.32½	.26	.25	.30	.28	.31	.33	.26	.28
12" Sewer Pipe.....	2,132	.40	.36	.36	.40	.38	.41	.40	.34	.35
15" Sewer Pipe.....	205	.50	.55	.54	.50	.55	.51	.52	.50	.50
10" Cast Iron Pipe.....	84	1.00	1.30	1.00	1.00	1.00	2.00	1.75	2.00	1.00
6" on 8" Y Connections.....	1,036	.40	.48	.45	.50	.80	.50	.85	.30	.50
6" on 10" Y Connections.....	171	.50	.64	.60	.60	1.00	.60	.85	.40	.60
6" on 12" Y Connections.....	40	.60	.79	.80	.70	1.50	.70	.87	.50	.70
Manholes.....	66	47.50	38.00	37.50	45.00	65.00	40.00	41.25	40.00	40.00
Flushtanks.....	34	80.00	70.00	70.00	75.00	85.00	75.00	73.00	65.00	70.00
Lampholes.....	6	5.00	9.50	10.00	10.00	15.00	10.00	9.00	6.00	8.00
Cubic Yards Concrete.....	3	7.00	8.00	10.00	12.00	11.50	6.50	7.50	10.00	12.00

Great Bend, Kan.—On Dec. 7 a letting was held for the construction of a sanitary sewer system, and a tabulated statement of the bids by sections is presented. It was considered that the bid of the lowest bidder was insufficient to cover the cost of material and labor, and the matter was taken under advisement for a few days. Since then the lowest bidder has requested the privilege of withdrawing his bid, and the contract will be awarded to Bash & Gray, of Joplin, Missouri, who were next bidders. Estimates for the cost of this work was \$68,208.—The W. K. Palmer Company, Engineers; O. E. Wheelock, Business Manager.

FIRM OR COMPANY	Sec. 1, Complete	Sec. 2, Complete	TRENCHING AND BACK-FILLING						SEWER PIPE FURNISHED AND LAID					
			0-4'	4'-6'	6'-8'	8'-10'	10'-12'	12'+	8"	10"	12"	15"	18"	8" C.T.
(A) S. T. Davis Construction Co., Joplin, Mo.....	\$23,000	\$43,000	\$0.18	\$0.20	\$0.25	\$0.35	\$0.50	\$0.65	\$0.30	\$0.35	\$0.50	\$0.70	\$0.95	\$2.00
(B) Marshall Bros., Las Animas, Col.....	24,700	43,400	.18	.30	.40	.60	.80	1.10	.32	.45	.52	.65	.80	1.40
(C) E. M. Eby, Wellington, Kans.....	24,000	44,000	.22	.33	.45	.60	.75	1.00	.25	.35	.40	.60	.90	1.50
(D) Rushmore & Gowdy, Cherryvale, Kan.....	23,000	41,900	.24	.34	.45	.57	.80	1.05	.26	.37	.43	.58	.95	1.40
(E) Mishou, Ripley & Hasselmen, Pueblo, Col.....	23,896	43,280	.22	.32	.46	.61	.72	.89	.22	.32	.45	.62	.95	1.25
(F) Bash & Gray, Joplin, Mo.....	25,510	38,440	.22½	.25	.45	.55	.72	.90	.22½	.30	.44	.59	.92	1.60
(G) J. W. Smith & Son, Webb City, Mo.....	22,000	30,000	.08	.10	.34	.40	.60	.90	.20	.30	.31	.45	.60	2.00
			.13	.20	.29	.43	.70	1.00	.19	.24	.30			

	STANDARD Y CONNECTIONS				5' 0" Man Holes	Extra Depth	Lamp Holes	Flush Tanks	Extra Const'n	Extra Labor
	6" on 8"	6" on 10"	6" on 12"	6" on 15"						
(A).....	\$0.95	\$1.20	\$1.60	\$2.35	\$35.00	Per Ft.	\$7.00	\$85.00	\$10.00	\$30.00
(B).....	.90	.95	1.40	3.75	45.00	10.50	6.00	72.00	12.00	25.00
(C).....	.75	1.00	1.25	2.00	40.00	4.00	10.00	75.00	12.50	40.00
(D).....	.80	1.10	1.30	2.00	43.50	2.90	6.00	76.00	10.00	30.00
					42.00	3.50	6.00	72.00		
(E).....	.88	.96	1.40	2.60	39.00	2.50	7.00	90.00	8.00	30.00
(F).....	.88	1.15	1.45	.....	40.00	3.00	4.00	75.00	6.00	28.00
(G).....	.88	1.05	.....	.....	40.00	3.00	4.00	75.00	6.00	28.00
	.40	.50	.70	1.00	35.00	8.00	10.00	65.00	10.00	40.00
			.60	.75	30.00	3.50	10.00	60.00	10.00	30.00

Pipe Co., Texarkana, 11¼c.; San Antonio Sewer Pipe Co., 12c. Two cars of 15-in. sewer pipe, all No. 2 size, were bought of the San Antonio Sewer Pipe Co. The price for the respective sizes was 37c., 56c. and 74c. a foot. Other bidders were: The Post Pipe Co., Texarkana, 37¼c., 56¼c. and 74¼c., and the Evans & Howard Fire Brick Co., St. Louis, 40c., 60c. and 90c. a ft.

Vancouver Barracks, Wash.—Bids were received by Constructing Quartermaster, U. S. A., Dec. 1, for construction of sewer laterals, flush tank and manholes on the rear line of the officers' quarters at this post; bids were: Henrichsen & Sykes, Vancouver, Wash., \$4,125; Glebisch & Joplin, Portland, Ore., \$3,128; Rector & Daly, Vancouver, \$2,680; M. R. Sparks, Vancouver, \$3,930; George Gordon, Portland, \$4,400. Work includes 2,243 ft. of 6-in. pipe, 1,064 ft. laterals, 6-in., one flush tank and six manholes.

WATER SUPPLY

Bessemer, Ala.—Council is considering purchase of water works owned by private company.

Conway, Ark.—Commissioners Water Works Improvement District No. 1 will receive bids on 8-in. deep well.—Geo. Wilson, Secretary.

Dumas, Ark.—Town has decided to install water system.

Edmons, Ark.—Citizens have voted \$35,000 for water works.

Yuma, Ariz.—Siphon across Colorado Colorado River will be constructed; \$150,000 is available.

Fullerton, Cal.—Reservoir, capacity 1,000,000 gallons, will be built north of city for municipal supply.

Redlands, Cal.—West Redlands Water Co. is considering improvement of pumping station in Reservoir Canyon.

San Francisco, Cal.—Plans have been completed for construction of Ashbury st. and Jones and Clay sts. distributing reservoirs.

San Francisco, Cal.—Citizens will vote Jan. 14 extension of time from Dec. 28 on issuance of \$45,000 bonds for purchase of municipal water supply at Lake Eleanor, and on \$35,000 bonds for purchase of Spring Valley Water Company's properties. Engineer Manson has estimated cost of several items in proposed plan as follows: Lake Eleanor, \$1,834,525; Tuolumne district, \$3,285,400; Foothill district, \$1,708,500; Valley district, \$5,044,800; Bay district, \$5,966,000; City district and betterments, \$1,500,000; real estate and rights of way, \$1,000,000; total, \$20,339,225. Contingencies and engineering, \$2,660,775; total, \$23,000,000.

have awarded contract for the storm water sewer to M. N. Lagenovich, whose bid was \$31,950, over \$6,000 less than the estimate made by City Engineer Dupuy; other bids were as follows: O. F. Earley, \$34,536; Andrew Holloway, \$34,900; California Ornamental Brick Co., \$34,718.54, and A. S. Bent, \$38,950.

Chicago, Ill.—Bids were opened Nov. 30 by Board of Local Improvements for constructing sewer in South 52d ave. and contract has been awarded to the Federal Improvement Co., Rookery Bldg., Chicago, at \$228,000. Other bidders were: Nation Contracting Co., \$316,000; Nash Bros., \$330,000.—John J. Hanberg, Commissioner.

Elgin, Ill.—Tetens, Sorenson & Jorgensen, city, have been awarded contract for making house connections with the Spring st. sanitary sewer for \$657.—C. E. Plum, Secretary Board of Local Improvements.

Rock Island, Ill.—People's Construction Co., Davenport, Ia., has secured contract for constructing the Sixth Ward sewer system for \$47,583, bids opened Nov. 22.

Evansville, Ind.—Newman Construction Co. has secured contract for constructing Blackford ave. sewer for about \$10,000.

Leavenworth, Kan.—Contract for putting in an 18-in. sewer line to connect Military Prison has been awarded to R. J. and W. M. Boyd, of Kansas City, Mo.; accepted bid is \$9,997; firm was also awarded the contract for making sewer connections to the Post Hospital, amounting to \$500.

Baltimore, Md.—City has awarded contract to David Peoples, 231 Calvert st., Baltimore, at about \$108,000, to construct lateral sewers, contracts Nos. 44 and 45; former will call for 25,000 lin. ft. vit. pipe sewers, 8 to 15-in. diameter, and 12,000 lin. ft. 6-in. house connections; latter, 27,000 lin. ft. vit. pipe sewers, 8 to 24-in. diameter, and 12,000 lin. ft. 6-in. house connections.—Calvin W. Hendrick, American Bldg., Chief Engineer Sewerage Commission.

Lawrence, Mass.—Contractor Joseph Wagenbach & Sons were awarded the con-

tract, Dec. 14, to build sewer in Merrimack st. from the car barns to the Shaw-sheen River for \$616.30. Following were proposals submitted: Philip Holland, sewer, \$1.70 per ft., including manholes and catch basins; total \$649.40.

Richard Craven, Methuen, sewer, \$1.10 per foot; catch basin, \$50; manholes, \$5; total, \$571.71.

M. O'Mahoney, sewer, \$1.49 per foot; catch basin, \$36.50; two manholes, \$35; total, \$681.80.

Linehan Bros., sewer, \$1.35 per foot; one catch basin, \$40; two manholes, \$75; total, \$630.77.

Contractor Wagenbach, sewer, \$1.19 per foot; catch basin, \$65; manhole, complete, \$45; total, \$616.30.

Brooklyn, N. Y.—Bids were opened Dec. 8 by Bird S. Coler, Borough President, for furnishing material and constructing sewers in 16th ave., with outlet sewers in 72d st., 17th ave. and other streets, and the following are the bids received according to the percentage basis, Engineer's estimate, \$52,347: Newman & Carey, 93.33 per cent; Murphy Bros., 96.87 per cent; Jos. L. Segretto, 88.9 per cent, and Culp & McCauley, 94.96 per cent.

Rochester, N. Y.—John Petrossi Co. has secured contract for constructing Wolcott st. sewer for \$4,336.

Akron, O.—Board of Public Service has awarded following contracts for sewers: Upson st. sewer to McAllanan Bros.; Francis ave. sewer to M. H. O'Toole; McCoy st. sewer to McAllanan Bros.

Knoxville, Tenn.—Board of Public Works has awarded contract to Long & Price, city, to construct 18-in. storm sewer on South 9th st.

Dallas, Tex.—Five carloads of sewer pipe, ranging from 6-in. sanitary sewer to 20-in. storm sewer sizes, were bought Dec. 10 by the Board of Municipal Commissioners.

The car load of 6-inch sanitary sewer piping was bought of the Evans & Howard Fire Brick Co., St. Louis, at 10½c. a ft.; other bids were: Post

000. Spring Valley system, \$35,000,000. Grand total, \$58,000,000.

Fort Logan, Col.—Plans and specifications have been prepared for construction of a water works system; cost about \$35,000.

Greeley, Col.—City proposes to install 2 more slow sand filters at cost of \$10,000; work will be done by day labor.—Jesse Nolin, Superintendent Water Works.

Wallingford, Conn.—Board of Water and Fire Commissioners is considering order for laying of 6,700 ft. of large mains for better fire protection.

Kissimmee, Fla.—Citizens will vote on \$50,000 water works and sewerage bonds.

Bloomington, Ill.—City has sold \$50,000 bonds for reconstruction of water works; total cost of rebuilding \$150,000.—G. C. Morgan, 152 Monroe st., Chicago, Engineer.

Joliet, Ill.—Cost of proposed independent high pressure water system has been estimated at \$106,277.67.

Quincy, Ill.—City will expend \$80,000 next year on extension of water mains and other improvements.

Upland, Ind.—Council will soon let contract for construction and equipment of combined water works and electric light plant.

Winslow, Ind.—Effort is being made to organize company to put in system of water works; citizens wished the town to put in a municipal plant, but Town Council did not wish to take responsibility.

Colby, Kan.—Plans are being prepared for installation of water works system; cost \$45,000.

Erie, Kan.—Bids will be opened for construction of water works about Jan. 21; contracts will also be let at this time for electric light plant and sewer system.—Burns & McDonnell, Kansas City, Mo., Engineers.—J. C. Denions, City Clerk.

Marion, Kan.—City will soon let contract for construction of water works and lighting plant; cost \$65,000.

Topeka, Kan.—City Water Board has granted Jesse Shaw, Superintendent, permission to increase city's source of water supply; well will be sunk near pumping station early next spring.

Wakefield, Kan.—Citizens have voted to issue bonds for construction of water works.—Burns & McDonnell, Kansas City, Mo., Engineers; W. B. Starling, City Clerk.

Wilson, Kan.—Citizens have voted \$30,000 bonds for installation of water works.

Nicholasville, Ky.—City is considering adoption of filtration system.—J. Bunk, Superintendent.

Hammond, La.—Council has ordered extension of water mains distance four blocks.

Plaquemine, La.—J. E. Dunlap, representing light company, has asked Council for water works franchise.

Elkton, Md.—Town Council will petition Legislature for permission to issue bonds to build water works and electric light plant; charter for Maryland Water Co., which now owns water works, will expire in another year; town has option of purchase.

Gardner, Mass.—Business men are urging higher pressure water service.

Pittsfield, Mass.—Council will take up matter of installing gravity water system in near future.

Taunton, Mass.—Board of Aldermen has adopted order authorizing extension of water main into North Dighton.

West Medway, Mass.—City is considering construction of large standpipe and laying mains on various streets; cost will be \$60,000.

Chesaning, Mich.—Village is considering purchase of dam and power plant owned by O. D. Chapman; \$8,000 will then be spent in establishment of water works and light plant.

Kalamazoo, Mich.—Purchasing Committee of Council will buy 50 Nash 1/2-in. water meters at \$8.40 each.

Mt. Clemens, Mich.—More wells will be drilled and pumping capacity increased.—Herman Orbits, Superintendent.

Saginaw, Mich.—Council is considering plan to erect a new water plant, through which it will be possible to secure clean water.

Cold Spring, Minn.—Citizens have voted \$11,000 bonds for construction of water works system.

Nashwauk, Minn.—Council has decided to install new pump and make other improvements to water system; cost \$3,000.

Peterson, Minn.—Citizens will vote on \$5,000 bonds for installation of water works system.

Brookville, Miss.—City has sold \$7,000 bonds for construction of water works.

Centerville, Miss.—Town will expend \$2,500 in improvements to water plant.

Charleston, Miss.—City has decided to improve water works, electric light plant and sewer system; \$10,000 bonds will be issued.

Georgetown, Miss.—Board of Aldermen

has granted W. J. Davis, owner of Georgetown Manufacturing Company, franchise to furnish town artesian water. Mr. Davis will at once contract for artesian well, and if he secures flowing water will begin erection of large tank and laying of mains.

Hermann, Mo.—Citizens have defeated proposition to issue \$30,000 bonds for construction of system of water works; another election will be held in spring.

Kearney, Neb.—Plans have been completed by City Engineer Eugene Morey for construction of water works; estimated cost \$149,280.—G. E. Ford, City Clerk.

North Platte, Neb.—City has sold \$100,000 bonds for construction of municipal water works.

Manchester, N. H.—Water Commissioners are considering installation of electric pump in the low pressure station.

Crosswicks, N. J.—Town is considering proposition for installation of municipal water system.

Millington, N. J.—Millington Water Co. has been incorporated with capital of \$20,000 by Duane H. Nash, F. W. Boss and Fred. N. Taff, to operate water works in township of Passaic, Morris County.

National Park, N. J.—Borough Council is considering ordinance calling for construction of water works.

Point Pleasant, N. J.—Plans have been prepared for extension of water system at cost of \$50,000.

Lake Arthur, N. M.—Citizens have voted \$20,000 water works and street improvement bonds; \$17,500 will be used to sink first flow artesian well and pipe water all over town.

Las Cruces, N. M.—Installation of more adequate water system is being urged.

Plattsburgh, N. Y.—Plans and specifications are on file at office of Board of Public Works for 205-ft. dam to be built at Mead's Pond, West Plattsburgh, for storage purposes; dam will be of earth, with concrete walls, having 25-ft. spillway; cost about \$30,000.—R. L. Signor, Engineer; W. D. Savage, Superintendent.

White Plains, N. Y.—Board of Trustees has sold \$100,000 water bonds to Parkinson and Burr, New York, at \$106,143.

Winchester, N. Y.—City has sold \$100,000 bonds to be used for improvements to water system.

Jonesboro, N. C.—Town Commissioners authorized \$15,000 bond issue to construct water works.

Devils Lake, N. D.—A. B. Kerlin is planning to procure supply of better water for domestic use.

Dunseith, N. D.—John Gottbrecht will construct power plant at Mineral Springs; plant will provide for installation of water works system by pumping water from springs into reservoirs just about city.

Grand Forks, N. D.—Council has decided to install complete electric plant at city power house at estimated cost of \$8,150, including generator, \$2,100; engine, \$2,300; two boilers, \$2,300; mechanical stoker, \$1,000, and changes in pipe, \$300.—Earl D. Jackson, St. Paul, Engineer.

Akron, O.—Council has authorized contract with Professor E. W. Bemis, Cleveland, to conduct examination of Akron water works plant and to locate sufficient supply for city in preparation for demand of the State Board of Health that better source be provided; Council already has authorized bond issue of \$1,000 for engineering purposes.

Lorain, O.—Council has accepted report of Superintendent Roberts on extension of water works intake, and additional pressure station for the Fourth Ward; estimates, \$60,000 and \$20,000, respectively.

Newark, O.—City is considering construction of 3,000,000-gal. concrete reservoir to hold city reserve water supply; plans will be started about Jan. 1.—N. M. Taylor, President Board of Public Service.

Sandusky, O.—City is considering extension of fire mains in business district.

Altus, Okla.—Council is considering election on \$200,000 bond issue for extending municipal water and electric light systems and for building sewers.

Salem, Ore.—Plans for gravity water system are being considered.

Coudersport, Pa.—Citizens will vote on purchase of plant of Consolidated Water Co.

Duquesne, Pa.—Council is considering \$150,000 bond issue; direct line to stand pipe, installation of new standpipe, sewers and other improvements are needed.

Millvale, Pa.—Bids will be received Dec. 23, 3 p. m., for addition to municipal water and light plant.—H. N. Dixon, 401 Grant ave., Borough Clerk.

Philadelphia, Pa.—Citizens will vote in February on \$8,000,000 permanent loan; \$500,000 will be used for completion of Northeast high-pressure station, and \$525,000 for Queen Lane filtration work.

West Chester, Pa.—Chester County Home, West Bradford, is considering installation of \$35,000 water plant; much of

work will be done by inmates.—S. D. Garrett is interested.

Longmeadow, R. I.—Town has voted to appropriate \$2,500 additional for filtration purposes; also \$1,450 to extend water along Birnie tract.

Spartanburg, S. C.—Anderson Gas Co. desires prices on 10 miles 4-in., 4 miles 6-in. and 6 miles 2-in. wrought-iron screw pipe, with fittings, valves and meter connections complete, f. o. b. Anderson.—G. C. Thompson, Secretary.

Allen, Tex.—Allen Water Co. has been incorporated by S. P. Brush, J. Wesley Young and J. M. Huguley; capital \$5,000.

Childress, Tex.—City is considering issuance of \$10,000 bonds to complete water works.

Dallas, Tex.—Bids will be at once advertised by City Commission for construction of dam and spillway at White Rock reservoir.—Address Mayor Hay.

El Paso, Tex.—Mayor Jos. Sweeney has called off election on purchase of water works.

Milese, Tex.—Citizens have voted \$20,000 for water works.

Texarkana, Tex.—Citizens have voted \$200,000 bonds for construction of water works system.

Strasburg, Va.—Plans have been completed for enlargement of water works; it is proposed to connect large spring with present reservoir.

Winchester, Va.—Citizens will soon vote on \$100,000 bonds for new gravity soft water system.—H. H. Baker, Mayor.

Renton, Wash.—Citizens have voted \$12,000 bonds for extension of water system.

Yacolt, Wash.—Citizens will vote on bond issue for installation of municipal water system.

Martinsburg, W. Va.—Citizens have voted \$40,000 bonds for extension of water mains.

McMechen, W. Va.—Construction of water works for fire protection is being considered.

Wheeling, W. Va.—Glendale Water Co. will install water works system. J. M. Schaub, J. E. Roberts and W. D. Alexander, incorporators.

Parkersburg, W. Va.—Council has appropriated \$20,600 for purchase of hydrants, valves and boxes, etc.

Aylmer, Ont., Can.—Town Council has decided to rebuild water and light plant destroyed by explosion.

Hamilton, Ont., Can.—Fire and Water Committee is considering construction of water system to provide fire protection for residents of the Mountain Annex; cost \$1,190.

BIDS RECEIVED AND CONTRACTS AWARDED

San Francisco, Cal.—The Board of Public Works has awarded contract for constructing the Twin Peaks reservoir to the Healy-Tibbitts Construction Co. for \$153,143.09, they being the lowest bidders.

Waterbury, Conn.—Frank D'Aurio has been awarded contract by Board of Works for rock excavation for Morris dam at \$18,075, the lowest of those submitted by five contractors; bids for the work were as follows: Frank D'Aurio, \$18,075, Henry Spinach, \$18,790, Goodman & Trumbull \$20,315, Lambo & Cimetra \$21,800, Edward McManus \$24,000.

Savannah, Ga.—The following bids were received for the erection of a 50,000-gallon capacity steel tower and tank, to be erected at Bonaventure Cemetery: J. S. Schofield's Sons Co., Macon, Ga., awarded contract, \$2,540; Central Metal & Supply Co., Baltimore, Md., \$4,200; Tippet & Wood, Phillipsburg, N. J., \$3,000; Chicago Bridge & Iron Works, Chicago, \$3,100; Des Moines Bridge & Iron Co., Des Moines, Ia., \$3,040, \$2,990; F. H. Opper, Savannah, Ga., representing Des Moines Bridge & Iron Co., Pittsburg, Pa., \$2,992; Georgia Supply Co., Savannah, Ga., \$2,680.—P. D. Daffin, Chairman Park and Tree Commission.

New Bedford, Mass.—The Water Board, Dec. 14, let contract for furnishing a supply of cast-iron castings to the Fuller Iron Works, of Providence, R. I., for \$3,085; proposals were received and opened as follows: Fairhaven Iron Foundry Co.: 4c. per pound for item 1 and 2 1/2c. per pound for item 2.

Fuller Iron Works, Providence, R. I., 3 3/4c. per pound for item 1 and 2 1/2c. per pound for item 2.

Estimated amount required:

Item 1—30,000 lbs., more or less, of service stop boxes and covers.

Item 2—70,000 lbs., more or less, of gate boxes (gate-box frames, covers and risers, plugs, reducers, manhole frames and covers, and other similar castings).

Figuring out the amount of contract on the estimate named the following totals appear: Fairhaven Iron Foundry Co., \$3,125; Fuller Iron Works, \$3,085. Proposals

Gulfport, Miss.—Record of bids received Dec. 7, 1909, water works extensions:

ITEMS	Quantities	Camden Iron Works, Camden, N. J.	Sheffield C. I. Pipe & Foundry Co., Sheffield, Ala.	American C. I. Pipe & Foundry Co., Birmingham, Ala.	United States C. I. Pipe & Foundry Co., Chattanooga, Tenn.
FURNISHING C. I. PIPE AND SPECIALS:					
4" Cast Iron Pipe.....per ton	22	\$29.30	\$24.85	\$24.15	\$26.25
6" Cast Iron Pipe....."	440	28.00	24.85	24.15	26.25
8" Cast Iron Pipe....."	320	28.00	24.85	24.15	26.25
10" Cast Iron Pipe....."	23	28.00	24.85	24.15	26.25
Special Castings....."	21	54.00	55.00	53.00	55.00

ITEMS	Quantities	Camden Iron Works, Camden, N. J.	Glamorgan Pipe & Foundry Co., Lynchburg, Va.	Chapman Valve Mfg. Co., Indian Orchard, Mass.	Bourbon Copper & Brass Works, Cincinnati, Ohio	Columbian Iron Works, Chattanooga, Tenn.	Fairbanks Co., New Orleans, La.
VALVES, BOXES, HYDRANTS AND PLUGS:							
10" Valves.....Each	2	\$24.50	\$22.70	\$24.30	\$23.30	\$23.95	\$20.96
8" Valves....."	15	17.50	16.25	15.95	15.65	15.15	12.94
6" Valves....."	30	13.25	10.00	9.90	9.15	8.35	7.85
4" Fire Hydrants....."	63	24.00	21.15	23.00	18.00	20.20	20.45
6" Fire Hydrants....."	10	30.00	26.80	27.50	24.00	23.55	21.70
4" Rapp Screw Plugs....."	10	.....	.....	.....	.....	.....	.....
6" Rapp Screw Plugs....."	75	.....	.....	.....	.....	.....	.....
8" Rapp Screw Plugs....."	12	.....	.....	.....	.....	.....	.....
10" Rapp Screw Plugs....."	4	.....	.....	.....	.....	.....	.....
Extension Valve Boxes....."	47	2.75	2.20	3.10	2.25	2.35	2.45

ITEMS	Quantities	A. C. Jones, Opelousas, La.	J. W. Doolittle & Sons, Corydon, Ind.	A. L. Patterson & Co., New Orleans, La.	Greer & Co., Gulfport, Miss.	M. F. Scarry, Gulfport, Miss.	J. W. Gurley & Co., Mobile, Ala.
DISTRIBUTING AND LAYING PIPE:							
Unloading & Hauling, pr. ton	840	\$0.50	\$1.00	\$2.50	\$1.35	\$1.50	\$1.50
Laying 4" pipe.....per ft.	2,000	.11	.18	.15	.20	.18	.16
Laying 6" pipe....."	27,000	.12	.19	.15	.20	.20	.19
Laying 8" pipe....."	14,500	.15	.22	.18	.22	.23	.25
Laying 10" pipe....."	750	.16	.25	.25	.30	.34	.31
Setting Fire Hydrants....."	73	1.50	3.00	3.00	2.50	3.00	4.00

Gulfport, Miss.—Record of bids received on various items, Dec. 7, contracts having been awarded those marked *.

Name of Bidder	Amount Bid
PUMPING STATION—Complete:	
Coast Security & Mortgage Co.....	\$1,343.10
Geo. S. Gully.....	1,475.00
R. S. Dinsmore.....	1,772.70
*Chevally & Fursden.....	1,230.00
ARTESIAN WELL—1,000 ft. depth, 50 ft. strainer:	
Paterno Touzet & Co., No. La.....	\$3.00, \$7.25
P. T. Doyle, Hattiesburg, Miss.....	3.75, 6.50
John A. Sutter, Pass Christian, Miss.....	3.50, 4.30
*Brown Deep Well Co., New Orleans, La.....	2.35, 7.00
FIRE ALARM SYSTEM—6 miles wire:	
*Gamewell Fire Alarm Co., New York, N. Y.....	3,500.00
Tennessee District Telegraph Co.—Type G.....	3,679.60
Tennessee District Telegraph Co.—Type A.....	3,454.60
55-FOOT EXTENSION LADDER:	
Anderson, Coupling & Fire Supply Co., Kansas City, Mo.—Trussed.....	154.00
—Not trussed.....	89.00
American La France Fire Engine Co., Elmira, N. Y.—Trussed.....	165.00
—Solid side, trussed.....	100.00
CAST-IRON PIPE AND SPECIALS:	
Camden Iron Works, Camden, N. J.....	23,800.60
Sheffield Cast Iron Pipe & Foundry Co.....	21,208.35
*American Cast Iron Pipe & Foundry Co., Chattanooga, Tenn.....	20,698.65
United States Cast-Iron Pipe & Foundry Co., Chattanooga, Tenn.....	22,443.75
FIRE HYDRANTS:	
Camden Iron Works, Camden, N. J.....	1,812.00
Glamorgan Pipe & Foundry Co., Lynchburg, Va.....	1,600.45
Chapman Valve Manufacturing Co., Indian Orchard, Mass.....	1,724.00
Bourbon Copper & Brass Works, Cincinnati, O.....	1,374.00
*Columbian Iron Works, Chattanooga, Tenn.....	1,508.10
Fairbanks Co., New Orleans, La.....	1,505.35
VALVES AND BOXES:	
Camden Iron Works, Camden, N. J.....	838.25
Glamorgan Pipe & Foundry Co.....	692.55
Chapman Valve Manufacturing Co.....	730.55
Bourbon C. & Brass Works.....	661.60
Columbian Iron Works.....	636.10
*Fairbanks Co.....	586.67
PIPE LAYING AND HAULING:	
*A. C. Jones, Opelousas, La.....	6,421.37
J. W. Doolittle & Sons, Corydon, Ind.....	9,926.50
A. L. Patterson & Co., New Orleans, La.....	9,466.50
Greer & Co., Gulfport, Wis.....	10,531.50
M. F. Scarry, Gulfport, Wis.....	10,829.00
J. W. Gurley & Co., Mobile, Ala.....	10,859.50
RAPP SCREW PLUGS:	
Camden Iron Works.....	153.30
*Columbian Iron Works.....	144.36
United States Cast-Iron Pipe & Foundry Co.....	288.60

for furnishing 25 2-in., 70 1-in., 300 ¾-in. and 1,000 ½-in. meters, from Thomson Meter Co., Brooklyn, N. Y.; Neptune Meter Co., New York City; Hersey Mfg. Co., Boston, Mass.; Henry R. Worthington, New York City; Union Meter Co., Worcester, Mass.; Buffalo Meter Co., Buffalo, N. Y.; Pittsburg Meter Co., East Pittsburg.

Natchez, Miss.—Sheffield Cast Iron, Pipe & Foundry Co., Sheffield, Ala., has secured contract for pipe, crosses, T's and sleeves

to be used in repairing water works, for about \$6,000.

Valentine, Neb.—Katz-Craig Contracting Co., Branders' Bldg., Omaha, has secured contract for constructing water and lighting system at Valentine.—W. K. Palmer Co., Kansas City, Mo., Engineer.

Perth Amboy, N. J.—Mayor Bollschweiler has approved the contract which the Water Board signed with the Wisconsin Engine Co. for a 12,000-gallon high

duty pump to be installed at Runyon.—Thomas J. Clark, President of Board.

Little Falls, N. Y.—The Board of Public Works opened bids for laying water main in East Loomis st., between Ray and the John Peirce stone crushing plant, as follows: The Berrigan Construction Co., \$3,950; Patrick Kearney, \$4,387; Cooper-Snell Co., 75c. for each foot of pipe, \$4.50 for rock excavation, 70c. earth excavation and 80c. back fill; as the City Engineer wants to make some soundings to ascertain which bid is the lowest, the bids were laid on the table. On the call for bids three weeks previous there was but one submitted, the Cooper-Snell Co., for \$5,250; the Engineer's estimate of the cost is about \$2,800.

Long Island City, L. I., N. Y.—Following are totals of bids opened Dec. 8 by J. H. O'Brien, Commissioner of Water Supply, Gas and Electricity, for furnishing, delivering and laying water mains in Greenpoint and Thomson aves., Hoffman blvd. and Union turnpike, 1st and 2d Wards, Borough of Queens: Newman & Carey, Brooklyn, \$205,806; Jos. Murphy & Son, Inc., New York City, \$215,409; Wilton Construction Co., 115 Elliot ave., Williamsbridge, N. Y., \$196,958; H. E. Fox, 80 E. 125th st., New York City, \$197,088; Thos. F. Tuohy Co., Flushing, L. I., \$196,419; D. Cuozzo, 21 Park Row, New York City, \$196,940; McAvoy & Grippo, L. I. City, \$177,560; T. J. Gallagher, \$216,503; Haggerty Construction Co., 215 W. 125th st., New York City, \$225,497; Brooklyn Alcatraz Co., Brooklyn, \$184,617; Pease Bros., Flushing, L. I., \$188,427; J. C. Rodgers, Jr., 121 W. 125th st., New York City, \$218,147; Hanover Contracting Co., 215 W. 125th st., New York City, \$190,562; Hicks, Johnson Co., Brooklyn, \$187,958; Jas. Kelly, Brooklyn, \$203,749; H. J. Mullen, Jamaica, \$211,413; Atlanta Contracting Co., 431 E. 91st st., New York City, \$206,359; J. H. Holmes, 367 Fulton st., Brooklyn, \$202,535; Long Island Contracting & Supply Co., L. I. City, \$187,761.

New Brighton, S. I., N. Y.—Following are totals of bids opened Dec. 14 by J. H. O'Brien, Commissioner Water Supply, Gas and Electricity, New York City, for furnishing, delivering and laying water mains and appurtenances in Center, Court, Moore and Tysen sts.: Clark, Garretson, Huguenot, Rossville, Sea View and Stapleton aves.; Terrace court, Fresh Kills and Woodrow roads, as follows: C. Beckwith, of Herkimer, \$95,363; Jos. Johnson Sons, West Brighton, S. I., \$107,565; I. H. Holmes, 367 Fulton st., Brooklyn, \$104,630; D. Cuozzo & Co., 21 Park Row, New York City, \$88,846; J. Heaney, \$106,753; Murphy Bros., Brooklyn, \$86,648.

No bids were opened Dec. 14 for Contract No. 6, which was for water mains on Westervelt, Beechwood, Bismarck and other streets in Richmond Borough, as advertisement had been withdrawn before date of opening.

Clinton, Okla.—City has awarded contract to Stone Construction Co., city, at \$7,600 to construct filtration system for water works.—C. C. Smith, City Clerk.

Pawtucket, R. I.—Commissioner of Public Works has awarded to Allen & Reed, Inc., 178 Dorrance st., Providence, contract for furnishing 2,100 pieces of 6, 8, 10 and 12-in. c.-l. water pipe for \$16,728; also same company for 18,000 ft. of 1, 1½ and 2-in. wrought iron tarred water pipe, for \$1,177.

Dallas, Tex.—The City Commissioners, Dec. 8, opened bids for furnishing approximately 5,334 tons of water pipe; four bids being submitted; the bid of the Dimmick Pipe Co. of Birmingham, was \$28.74 per ton on the pipe and \$54.50 a ton on the specials. R. D. Wood & Co., of Philadelphia, bid \$28.89 on pipe and \$54.75 on specials. The United States Cast-Iron Pipe Co. of Chattanooga, bid \$27.70 on pipe and \$50 on specials. The Rusk, Texas, penitentiary bid \$28 on the 8, 10 and 12-in. pipe and \$27 on the 16, 20 and 24-in. pipe, and \$55 on the specials. The bids were referred to Commissioners Doran and Sullivan.

Bids were opened Dec. 10 and referred as follows: For 200 tons of 6-in. c.-l. water pipe, R. D. Wood & Co., Philadelphia, \$29.90 a ton; United States Cast-Iron Pipe & Foundry Co., Birmingham, \$29.55 for immediate delivery, \$28.65 if delivered after Jan. 16, 1910, and \$50 for specials (Jan. 16 is the time when a lower freight rate is to go into effect on order of the Interstate Commerce Commission); Sheffield Cast-Iron Pipe & Foundry Co., Sheffield, Ala., \$20.10 and \$55 for specials, and the General Pipe & Foundry Co., Atlanta, \$34.30 a ton.

Dallas, Tex.—On recommendation of Commissioner Sullivan the contract to build a coal trestle at the new pumping station was awarded to Austin Bros., they being the lowest and best bidders. They are to erect the trestle for \$1,748.70.

Fort Worth, Tex.—Columbian Iron Works, Chattanooga, Tenn., will be award-

ed contract for supplying city water works department with 106 independent valve fire hydrants, as their bid was lowest of four opened by Commissioner Powell, Superintendent Griffin, City Purchasing Agent, and Chief Blideker of the Fire Department; bid was \$41.75 each, the Texas Manufacturing Co., the Southern Supply Co. and the Darling Co. being the other bidders.

Fort Worth, Tex.—National Machinery Co., Oklahoma City, is lowest bidder at \$66,307.56 for 20 miles of pipe for dual water system and various extensions; bids included 61,215 ft. 6-in. pipe, 22,950 ft. 8-in. pipe, 12,700 ft. 10-in., 3,000 ft. 12-in., 800 ft. 16-in. and 4,500 ft. 12-in., together with 77 tons of fittings.

Nine firms submitted bids for the contract, as follows: Rusk penitentiary, Dimmick Pipe Company of Birmingham, Ala., Sheffield Pipe & Foundry Company of Sheffield, Ala., R. D. Wood & Co. of Philadelphia, Warren Foundry & Machine Company of New York, Charles Millar & Sons Co., Utica, N. Y., The National Machinery Company of Oklahoma City, United States Cast-Iron Pipe Company of Chattanooga, Tenn., and the Birmingham Cast-Iron Pipe Company of Birmingham, Ala.

The bids ranged from \$28.15 to \$34.35 per ton for pipe and from \$50 to \$60 per ton for fittings. Bid of the Rusk penitentiary was among the lowest submitted.—W. J. Gilvin, Commissioner of Finance and Revenue.

Taylor, Tex.—The contract for dredging and excavating for the International and Great Northern Railway Co.'s big lake and reservoir for the storage of water on the Flag Springs ranch, three-fourths of a mile east of Taylor, and to cover a basin of 17 acres of land, has been let to George Byrne, of Houston, who has arrived in Taylor with two carloads of plows, scrapers, etc.

Toronto, Ont., Can.—Canada Foundry Co. has secured contract for 2,000 lengths of 12-in. c.-l. pipe at \$33,500.

LIGHTING AND POWER

Little Rock, Ark.—J. F. Jackson, Westinghouse Electrical Co., Pittsburg, will furnish estimate of cost of constructing electric light plant.—E. A. Kingsley, City Engineer.

Paragould, Ark.—Crystal Light and Ice Co. will expend \$20,000 in improvements to lighting plant; 20-year franchise granted.

Bakersfield, Cal.—West Side Electric Company has decided to install 600-k.w. generator instead of a 300-k.w., as originally planned.

Chico, Cal.—Fire and Light Committee has been instructed to investigate lighting system as to what new lights are needed.

Los Angeles, Cal.—Council has decided to issue \$3,500,000 bonds, proceeds to be used for construction of municipal plant in connection with Owens River project.—H. J. LeLande, City Clerk.

Pasadena, Cal.—City Trustees have taken necessary legal steps to make lighting district of Electric, Bushnell and Fletcher aves. a possibility.

Pasadena, Cal.—Council will consider proposition of placing overhead wires underground.

Redding, Cal.—The Sacramento Valley Power Co., Redding, has decided to issue \$500,000 bonds for extension of its system.

Sacramento, Cal.—Plans and specifications have been adopted by Board of City Trustees for underground wire system of Sacramento Electric, Gas & Railway Co.

South Pasadena, Cal.—Residents in various sections of city are planning to petition Board of City Trustees for street lights.

Colorado City, Col.—Plans are being considered for installation of electric light and power plant.—Stanley S. Effinger is interested.

Greeley, Col.—Greeley Street Railway Company will petition Council for franchise to furnish electricity for lamps as well as for street car service.

Bridgeport, Conn.—Connecticut Company will erect an addition to its power house, in which additional equipment will be installed; cost \$20,000.

East Norwalk, Conn.—District Committee has authorized extension of the electric transmission lines from Gregory blvd. to Marvin Ridge.

Washington, D. C.—Special inquiry has been received at an American consulate-general in Latin-American country for catalogues of acetylene gas lighting systems.—Address No. 4263, Bureau of Manufactures.

Jacksonville, Fla.—City has advertised for bids for lighting streets and public buildings by electricity or gas for a term of one year, beginning Jan. 1.—J. M. G. Carrera, City Clerk.

Quincy, Fla.—City will expend \$80,000 next year on extension of electric light system and other improvements.

Decatur, Ill.—Progressive Light & Power Co. has been incorporated, with capital of \$100,000.—Wm. H. Suffern, Robt. I. Hunt and Fred M. Ives, Incorporators.

Anderson, Ind.—School Board is considering plan to pipe steam from city electric light plant to heat high school building; distance 1 mile; cost \$40,000.

Bluffton, Ind.—Indiana Lighting Co. has been granted franchise; gas must be piped into city within six months.

Brazil, Ind.—Board of County Commissioners has granted franchise to Electric Transmission Company, Cincinnati, to erect poles and stretch wires in Lewis Township, this County; company proposes to transmit light and power to Coalmount, a distance of seven miles, and to supply light and power to the farmers along route of the line.

Grangeville, Ind.—Installation of either municipal gas or electric light plant is being considered.

Upland, Ind.—Council will soon let contract for construction and equipment of combined electric light and water works plant.

Mandeville, Ia.—Mandeville Electric Light & Ice Co. will soon begin erection of proposed light and ice plant.

Marshalltown, Ia.—F. G. Pierce, Secretary of Iowa League of Municipalities, is circulating petition asking for special election on municipal ownership of electric, gas and street railway systems, owned and operated by Marshalltown Light, Power & Railway Company.

Frankfort, Kan.—D. A. Steiner, Bern, has petitioned Council for electric light franchise.

Marion, Kan.—City will soon let contract for construction of lighting and water works plant; cost \$65,000.

Bowling Green, Ky.—R. W. Lynch, 1029 Center st., is considering construction of electric light plant.

Lexington, Ky.—Siebert-Herndon Electric Co. has been incorporated with \$10,000 capital stock by F. O. Siebert, Lexington; J. W. Thacker, J. P. Herndon and B. M. Herndon, Georgetown.

Louisville, Ky.—Southern Hydro-Electric Co. has been incorporated with \$6,000 capital stock by George G. Fetter, J. H. Cochran and Wallace Hoeling, Louisville, and G. B. Hoeling, Lexington, to develop water power of Dix River.

Plaquemine, La.—Local electric light company will rebuild plant.

Reading, Mass.—Town has voted to appropriate \$1,800 to extend electric service.

Revere, Mass.—Suburban Gas & Electric Co., of Revere and Winthrop, has filed with State Board of Gas & Electric Light Commissioners petition asking authority to issue \$165,000 additional capital stock, proceeds to be used in paying floating debt and in meeting cost of permanent improvements.

Birmingham, Mich.—Village Council is considering installation of an electric lighting system.

Buchanan, Mich.—Village Board of Trustees is considering installation of the Tungsten system of lighting on main st.

Chesaning, Mich.—Village is considering purchase of dam and power plant owned by O. D. Chapman and expend \$8,000 in establishment of light and water works plant.

Lowell, Mich.—Special election will be held on \$7,000 bond issue to complete electric lighting plant.

Sturgis, Mich.—Bids will soon be called for machinery for new municipal power plant; plans are now being prepared.

Duluth, Minn.—Council has ordered sale of \$200,000 light and water extension bonds.

Minneapolis, Minn.—Prof. W. D. Marks, City Gas Expert, has estimated cost at \$3,626,270 for constructing municipal gas plant.

Charleston, Miss.—City is considering municipal electric light plant, water works and sewerage system; cost \$10,000.

Elkton, Mo.—Town will petition Legislature for permission to issue bonds to build electric light and water works plant.

Maryville, Mo.—Maryville Electric Light & Power Co. will enlarge power plant; will also install boilers and 200-h.p. engine.—Chas. Wirtz, Chief Electrician.

Mexico, Mo.—Mexico, Santa Fe & Perry Traction Co. will construct three electric power plants.—C. W. G.ather, Secretary.

Slaters, Mo.—Installation at municipal electric light and water plant of 250-h.p. gas producer or a steam plant with generator and motor-driven deep well pump is being considered.—L. E. Shepherd, Superintendent.

Springfield, Mo.—Springfield Gas & Electric Co. will erect power houses and gas producer plants in several cities where franchises have been received.—H. J. Fox, Superintendent.

Harvard, Neb.—O. J. Shaw, Aurora, will at once install electric light plant.

Mullica Hill, N. J.—Residents have subscribed \$8,000 for purpose of bringing gas into town.

Plainfield, N. J.—Building and Grounds Committee of Board of Governors of Muhlenberg Hospital has reported favorably on proposition to install electric lighting plant at hospital.

Princeton, N. J.—Council has instructed Light Committee to employ an electrician to determine the cost of municipal plant for town.

Dunkirk, N. Y.—Dunkirk Power & Heating Company has applied for franchise to build conduits for transmission of electricity.

Antler, N. D.—Business men will raise \$50,000 fund for purpose of sinking wells in this vicinity in hope that gas may be found.

Dunseith, N. D.—Conversion of power at Mineral Springs, three miles north of city, into electricity is the plan proposed by John Gottbreht; next spring he intends to construct electric light plant at falls, being able to secure enough water power to operate plant and supply Dunseith with electricity; plans also provide for installation of water works system by pumping water from springs into reservoirs just above city.

Altus, Okla.—Council is considering election on \$200,000 bonds for extending lighting and water systems and building sewers.

Oklahoma City, Okla.—Union Gas & Electric Co. has been incorporated by F. L. Braniger, C. S. Stephenson and E. B. Brown; capital \$50,000.

Portland, Ore.—About 1,642 acres lying along Clackamas River have been purchased by Portland Railway, Light & Power Co.; company intends to extend its power sites and buildings on acreage acquired.

Chambersburg, Pa.—Chambersburg, Greencastle and Waynesboro Electric Railway Co. will issue \$400,000 bonds to improve power plant and make extension to trolley line.

Philadelphia, Pa.—Citizens will vote in February on \$3,000,000 permanent loan; \$60,000 will be used for lights and improvements at Independence Hall.

Bridgewater, S. D.—City has granted A. M. Weidenbach, city, 20-year electric light franchise.

Flandreau, S. D.—Construction of electric light plant is being considered.

Winchester, Tenn.—City has sold \$14,000 bonds to improve city water and electric plant; the power house will be remodeled and new water wheels installed.

Richmond, Va.—Council has authorized additional appropriation of \$65,000 to complete overhead system in connection with municipal power and lighting plant.—E. W. Trafford, Chamber of Commerce Bldg., Richmond, Consulting Engineer.

Roanoke, Va.—Roanoke Electric Light & Power Co. has been incorporated with capital stock of \$1,000,000 to operate water power electrical plant on Roanoke River.—M. Coffman, Woodstock, President.

Staunton, Va.—Virginia School for Deaf and Blind has decided to petition Legislature for \$10,000 appropriation to erect electric light plant.

Puyallup, Wash.—Fire, Water and Light Committee will purchase 4-in. water mains for use on South Hill.

Seattle, Wash.—Coon Power Co. has been incorporated by H. Blow, S. H. Garrick and R. E. Coon; capital \$150,000.

Seattle, Wash.—American Gas & Electric Co. has been incorporated with \$10,000,000 capital.—B. H. Silver and C. S. Hills are interested.

Tacoma, Wash.—City Electrician has recommended purchase of 40 three-glow and 30 four-glow Westinghouse Nernst lamps and that other lamps be given in payment.

Millville, W. Va.—Winchester & Washington Railway, Winchester, has engaged P. O. Kellholtz, Consulting Engineer, 615 Continental Bldg., Baltimore, Md., to prepare plans and specifications and superintend construction of steam power plant as auxiliary to water power electric plant; company proposes to install 1,500-k.w. plant, 2,200 volts, three phase, 60 cycles, for electric light and power purposes; also for distribution through Jefferson and Berkeley Counties, West Virginia, and through Clarke and Frederick Counties, Virginia.

New Martinsville, W. Va.—City has granted franchise to New Martinsville Electric Light, Heat & Power Co. to furnish electricity for lamps in Brooklyn Junction.—R. E. Hall, Chief Engineer.

Hamilton, Ont., Can.—Board of Works has authorized City Engineer Macallum to confer with Hydro-Electric Power Commission in connection with installation of transmission line from Dundas through city to Beach pumping station.

Hamilton, Ont., Can.—Council is considering installation of 52 arc lamps in new annex district.

Selkirk, Man., Can.—Town is considering purchase of electric light plant now being operated by the Selkirk Light & Power Co.

BIDS RECEIVED AND CONTRACTS AWARDED

Bremen, Ga.—McCrary & Co., Atlanta, have secured contract for constructing electric light plant.

Louisville, Ky.—Kentucky Electric Co. has awarded contract to Falkenau Electrical Construction Co., Chicago, Ill., for improvements to plant, including construction of pipe line 150 ft. long to Ohio River for supplying water; total cost \$40,000.

Eveleth, Minn.—The bid of the Home Heating & Electric Co. to furnish Eveleth with arc light for a period of five years at \$10 per arc light for the first 40, and \$8 for the remaining lights, was accepted by the Council and the contract granted to the company. The contract provides that if the city takes over the plant, the contract will become null and void.

Valentine, Neb.—Katz, Craig Construction Co., Omaha, has secured contract for constructing municipal power plant.—W. K. Palmer Co., of Kansas City, Mo., Engineer.

Eugene, Ore.—Council has entered into a contract with the Northwestern Corporation, whereby the latter is to furnish street lights for the city another year at the rate of \$6 per month for each of the 80 arc lights and \$1 month each for 32-c.p. incandescents, 50c. per month for each 16-c.p. incandescents and \$2 per month for six alley lights. The city is now constructing an electric plant of its own on the McKenzie River, and expects to be able to furnish its own lights within a year.

Philadelphia, Pa.—Contract for furnishing and installing a system of arc lamps for the electric towers in Girard College has been awarded to J. F. Buchanan & Co. for \$4,087. Contract for improvements to the power house has been let to Wm. M. Anderson for \$4,620.

Pittsburg, Pa.—Town Council of Walls Borough has decided to light Borough with electricity after Jan. 1 next; ordinance has been given final passage, awarding contract to the United Electric Light Co., of Wilmerding, for arc lights; rate will be \$60 per arc light year.

Kooskia, Wash.—Bates & Rogers, of Spokane and Atlanta, Ga., have secured contract for constructing concrete dam across middle fork of Clearwater River at Kooskia, for purpose of generating power for electrical and manufacturing purposes; work will include construction of power plant, cement factory and saw mill and pulp mill.

Tacoma, Wash.—Bids containing offers to furnish city with 1,000 watt meters and to build storm sewers on Pearl st. to drain property adjacent to and in Point Defiance Park, have been rejected by Commissioner of Public Works. Bids for the meters were thrown out because all the bidders, with the exception of one concern whose bid was declared illegal because it did not conform to the specifications, offered to furnish the supplies for the same figure. Commissioner McGregor has decided to purchase meters when they are needed rather than submit to what some city officials term a combine of electrical supply houses. Bidders agreed to sell city meters in small quantities at the prices proposed in the bid.

All four supply houses—the Westinghouse Electric Manufacturing Company, the General Electric Company, Bowie & Love and Heffernan & Godfrey—bid \$11,726.55. The Electric Appliance Company bid \$9,940.

Tacoma, Wash.—Failure of one independent supply company to enclose full specifications, in opinion of Commissioner of Public Works H. J. McGregor, with its bid for approximately \$25,000 worth of incandescent lamps, has prevented awarding contract and will necessitate laying eight bids made, seven of which are identical, before the City Council for decision; bids were opened Dec. 10, and it was found that with one exception eight bids were alike to the fraction of a cent. Cameron Electric Co., Seattle, representing an independent Pennsylvania concern, bid about \$375 lower than the seven firms which offered bids under a so-called working agreement; association of seven is comprised of the Westinghouse Electric Co., General Electric Co., A. Z. Smith, Bowie & Love, Burton R. Stare, Central Electric Co. and General Incandescent Lamp Co.

Ft. Frances, Ont., Can.—City has awarded contracts as follows: For arc lamps to the Canadian Westinghouse, Ltd., meters to the Canadian General Electric Co. and transformers to Allis-Chalmers-Bullock, Ltd.—W. E. Skinner, Ltd., Somerset Bldg., Winnipeg, Man., Consulting Engineer.

Niagara Falls, Ont., Can.—Hydro-Electric Commission has let contract for underground conduit system to the Canadian Contracts, Toronto.

FIRE EQUIPMENT

Little Rock, Ark.—Fire Chief Hafer has asked for appropriation for new motor truck.

Grass Valley, Cal.—Fire Delegates will request \$1,000 appropriation for installation of up-to-date fire alarm system.

Loyalton, Cal.—Town Council is considering bettering of fire facilities.

Oakland, Cal.—City will extend fire protection to annexed districts.

Oroville, Cal.—Fire Committee has made the following recommendations; Renovation and improvement of the Firemen's building; erection of an iron bell tower 70 ft. high; purchase of a motor combination chemical engine and hose wagon, with 1,000 ft. of hose, or a motor fire engine and equipments, and installation of Gamewell fire alarm system to replace one now in use.

Sacramento, Cal.—Board of City Trustees is considering plans for erection of fire house on 8th st.

San Francisco, Cal.—Chief Engineer Shaughnessy, of Fire Department, has recommended installation of light combination chemical engines and hose wagons in two houses, and three additional fire alarm boxes.

San Francisco, Cal.—Plans are being prepared for erection of engine house No. 42 at San Bruno ave. and Sillman st.

Ansonia, Conn.—Establishment of fire company in Fourth Ward is being considered.

Milford, Conn.—Plans have been prepared for new engine house at Fort Trumbull Beach.

Rowayton, Conn.—Purchase of chemical wagon is being considered.

Warehouse Point, Conn.—Residents have petitioned for establishment of fire department.

Willimantic, Conn.—Hilltop Hose Company has bonds available for apparatus for drying hose not to exceed \$500, and new combination hose and chemical wagon; cost \$1,200.

Mendota, Ill.—Chief Riegel and Aldermen are inspecting new hook and ladder wagons with view to purchase.

Quincy, Ill.—Chief Schlag is urging installation of fire alarm system.

Quincy, Ill.—Purchase of automobile fire engine is being considered; bids have been rejected for supplying city with new fire engine, either steamer or gasoline, as they were too high.

Viridin, Ill.—City will purchase new hose cart.

Wichita, Kan.—Motor chemical and hose wagon and 1,500 ft. of hose will be purchased in spring.—A. G. Walden, Chief.

Covington, Ky.—Jefferson Fire Co. No. 1 is considering improvements to fire equipment.

Shelbyville, Ky.—Council has decided to supply city with latest improved automobile hose wagon; cost \$2,500.

Baton Rouge, La.—Fire Chief Hugh Waddill is securing facts and figures regarding cost of combination chemical engine, fire engine and truck; engine will cost about \$8,000; chemical engine is needed, and this combination placed on motor. Chief Waddill figures, will be the cheapest possible investment for Fire Department.

Relay, Md.—Local fire company will purchase 50-gal. chemical fire extinguisher.

Haverhill, Mass.—Council is considering \$12,000 bond issue for purchase of motor-driven combination chemical hose wagon and truck, runabout equipped with hand chemical, runabout for street department and for purchase of playground in Bradford District.

Hopkinton, Mass.—Town will vote on purchase of fire apparatus.

Springfield, Mass.—Fire Commissioners are planning to purchase three more auto combination engines and modern aerial truck.

Swampscott, Mass.—Town Fire Committee will soon ask for bids for fire truck.

Kalamazoo, Mich.—Council is considering purchase of 2,000 ft. of additional hose, also fire engine.

Lansing, Mich.—Council is considering purchase of three automobile fire engines.

Paw Paw, Mich.—Electric fire alarm system will be installed soon and hand chemical engine purchased.—R. D. Loveland, Chief.

Saginaw, Mich.—Council has ordered purchase of combination auto hose cart and engine to cost not more than \$7,000.

Hibbing, Minn.—Bids will be advertised at once for erection of \$5,000 fire hall.—C. E. McIlhargy, Fire Chief.

Minneapolis, Minn.—Bids will be received Jan. 6, 2 p. m., for \$25,000 fire department bonds.—D. C. Brown, City Comptroller.

Wadena, Minn.—Installation of fire alarm is being considered.

Whitefish, Mont.—Volunteer Fire Department appointed a committee to look into matter of securing electric fire whistle.

Fremont, Neb.—Purchase of combination chemical and hook and ladder wagon is being considered.

Bergen, N. J.—City will purchase additional hose.

Clementon, N. J.—Clementon Fire Co. No. 1 will erect fire house on Berlin rd.

Cresskill, N. J.—Volunteer Fire Department is urging purchase of \$4,000 worth of hose.

Red Bank, N. J.—Liberty Hose Company is urging purchase of auto combination engine and hose cart.

Trenton, N. J.—Fire Department has been organized at State Prison with Deputy Geo. Smith as Chief.

Ventnor, N. J.—Council has ordered modern automobile fire engine added to fire department equipment.

Brooklyn, N. Y.—Deputy Fire Commissioner C. C. Wise is urging erection of fire house in neighborhood of Avenue C.

Carthage, N. Y.—City will purchase chemical wagon.

Forestville, N. Y.—Citizens of Sheriden have subscribed \$300 toward purchase of chemical engine.

Freeport, L. I., N. Y.—Hose Company No. 1 has voted to purchase automobile hose wagon as soon as funds can be raised.

—Ex-Chief A. B. Wallace is interested.

Owego, N. Y.—Firemen have requested Council to furnish badly needed equipment.

Painted Post, N. Y.—Board of Trustees of the Fire Department has under consideration offer of Painted Post Lumber Co. to erect hose house on the company's property free of expense to village.

Schenectady, N. Y.—Chief Yates has recommended purchase of 5,000 ft. hose, 10 new fire alarm boxes and 10 horses.

Shevriell, N. Y.—Fire Department has been organized with H. T. Moody as Chief.

Barberton, O.—Council will purchase auto truck.

Cheviot, O.—Bids will be received Jan. 10, noon, for \$10,000 bonds for equipping and furnishing fire department.—Chas. Craig, Village Clerk.

Cincinnati, O.—Mill Creek valley factory district is urging better fire protection.

Dayton, O.—City has sold \$6,000 bonds for equipment of Jersey st. engine house to Dayton Savings and Trust Co.

Muskogee, Okla.—Plans for East and West Side fire stations, drawn by C. J. Duffy, have been accepted.

Portland, Ore.—Plans by MacNaughton, Raymond and Lawrence, Architects, have been accepted for proposed fire house.

Duquesne, Pa.—Council has ordered purchase of fire wagon.

Harrisburg, Pa.—Council is considering ordinance to advertise for bids for keeping engine houses in repair.

Hazleton, Pa.—Purchase of triple auto steamer, chemical and hose cart for use in central part of city is being urged; cost \$65,000; Fire Committee will recommend \$1,000 appropriation for hose and \$5,000 for automobile chemical.

Nanticoke, Pa.—Architect Austin Reilly has been instructed to prepare plans for proposed home for Hanover Hose Co.

Philadelphia, Pa.—Citizens will vote at February election on \$8,000,000 permanent loan; \$265,000 will be used for new fire and patrol sites and buildings and \$100,000 for equipment for fire stations.

Dallas, Tex.—Fire and Police Commissioner H. L. Seay has recommended purchase of auto fire engine; cost \$8,000.—H. F. Magee, Fire Chief.

Norfolk, Va.—Sixth Ward Improvement League is urging establishment of fire station in its section of city.

Bethel, Vt.—Town will spend about \$5,000 for fire protection.

Puyallup, Wash.—G. A. Berry will prepare itemized list of fire department needs.

Edgewood, W. Va.—Edgewood Volunteer Fire Department will erect fire house.—Wm. Eisenach, Chairman Committee.

BIDS RECEIVED AND CONTRACTS AWARDED

Modesto, Cal.—Board of Trustees has awarded contract to Gorham Rubber Co., Los Angeles, for 1,000 ft. of special fire hose at 80c. a foot.

San Francisco, Cal.—The contract for constructing Chemical Engine House No. 12 was awarded to Kennedy & Owen for \$19,998.

Vincennes, Ind.—City will within next three months be equipped with new Gamewell Storage Battery Fire Alarm system, contract having been signed with Gamewell Co., of New York City, which calls for equipment costing \$1,800.

Vincennes, Ind.—Board of Works has definitely decided to equip the New No. 1 Hose House with Webb Auto combination hose wagon.

Norton, Kan.—The City School Board has contracted with the Capital Iron Co., of Topeka, through its representative.

George Skene, for the erection of two up-to-date fire escapes on the city school building; they are to be completed within 30 days, and will cost \$450 in place.

Springfield, Mass.—Board of Fire Commissioners has awarded to the Gamewell Fire Alarm Telegraph Co., Boston, the contract for manufacturing and installing the new fire alarm telegraph apparatus which is to be located in new fire headquarters station on Dwight st., at \$30,000.

Gulfport, Miss.—Bids for fire alarm system, extension ladder, fire hydrants, etc., given under "Water Supply," p. 946.

Oklahoma City, Okla.—City has awarded contract to Swatek & Parker, city, at \$32,986, to erect fire station.

Portsmouth, Va.—Fire Committee will recommend that the Gamewell Company furnish the 12 fire alarm boxes at cost of \$1,500.

ELECTRIC RAILWAYS

Eureka, Cal.—Humboldt & Eastern Railway Co. has completed preliminary surveys for proposed railway between this city and Redding.—E. E. Skinner, 318 5th st., Secretary.

Santa Clara, Cal.—Construction of line to run from Meridian to this city, Lima Park and East San Jose is being considered.—A. F. Kilham is interested.

Pensacola, Fla.—Ordinance has been introduced in Council granting franchise to Dallas Land Co. for extension of North Hill street car line.

Macon, Ga.—Macon Railway & Light Co. is considering building of several extensions, one to Cross Keys, another to Newburg and another to Bailey's Mill.—W. Jordan Masee, President.

Jerseyville, Ill.—Alton, Jacksonville & Peoria Railway Co. has decided to build 17 miles of track during 1910 extending from Godfrey to this city.—W. R. Heagler, Alton, General Manager.

Tampico, Ill.—Dixon, Rock Falls & Southwestern Electric Railway Company is considering construction of electric railway extending from this city to Geneseo, via Rock Falls and Hoopole; distance 30 miles.

Delphi, Ind.—Council has granted Fort Wayne & Wabash Valley Traction Company, Fort Wayne, franchise to furnish electricity for lamps, heat and motors.

Laporte, Ind.—Organization of Gary-Hobart-Valparaiso Traction Co., which will build line to connect Gary, Hobart and Valparaiso and will then extend it to Laporte, has been completed; company already has purchased much of right-of-way and has done some grading; company is capitalized for \$500,000. Former Senator Hopkins, of Illinois; Arthur Keator, of Chicago, and Blake A. Mapledoram, of Laporte, are back of project.

Martinsville, Ind.—Capital Circuit Traction Co. has applied to Council for extension of its franchise; company proposes to build an electric railway to encircle Indianapolis.

Monticello, Ind.—Petitions for election on proposition of \$35,000 subsidy for Indiana Northwest Traction Co. are being circulated in Jackson, Honey Creek, Princeton and Union Townships of White County; line, as proposed, will start at Logansport and extend to Remington, Rensselaer, Hammond and Chicago Heights, with branch line from Reynolds to Battle Ground, where it will connect with the Ft. Wayne & Wabash Valley traction line.

Ft. Dodge, Ia.—L. S. Case is interested in plan to build electric railway to connect Mason City, Waterloo and Ft. Dodge.

Lawrence, Kan.—Kansas City, Lawrence & Topeka Electric Railway Co. will build during 1910 32 miles of electric railway from Monrovia to this city, passing through De Soto and Eudora, Kan.—Graham Hughes, Rialto Bldg., St. Louis, Mo., Chief Engineer.

Wamego, Kan.—Wamego, Louisville and Pottawatomie Townships, Pottawatomie County, have voted to issue \$40,000 bonds to buy stock in Wamego & Rock Creek Valley Railroad Co., which has been organized by Pottawatomie County farmers and business men to build motor railroad from Wamego to Westmoreland.

Wichita, Kan.—City Commissioners have passed ordinance compelling Wichita Railroad & Light Company to build Mt. Carmel extension within six months.

Wichita, Kan.—Wichita Railroad & Light Co. will construct 10 miles of new track during 1910.—E. C. Clemmons, Chief Engineer.

Alexandria, La.—Alexandria Electric Street Railway Co. applied for a franchise to build extension on De Soto st.

Rockland, Me.—Rockland, South Thomaston & Owl's Head Railway Co. will construct 3-mile line connecting Martin with South Thomaston village.—John T. Berry, Superintendent.

Pittsfield, Mass.—Pittsfield Street Railway Co. will extend its road to Hancock line.

Meridian, Miss.—M. R. Grant has applied for franchise to build and operate street railway.

Bozeman, Mont.—Gallatin Valley Electric Railway Co. has decided to build 25-mile extension from this city, Hot Springs northward through Belgrade to Dry Creek territory.

Lincoln, Neb.—Lincoln Traction Co. is considering building 3 miles of track during coming year.—F. H. Brooks, 8th and K sts., Superintendent.

Omaha, Neb.—Nebraska Traction and Power Co. is considering extension of line to Springfield from Papillion.—Mel Uhl, President; J. F. Emmert, Secretary.

Atlantic City, N. J.—J. F. Tatem, Suburban Railway Co., is interested in construction of trolley line between this city and Cape May.

Las Cruces, N. M.—Committee appointed by Town Board has returned favorable report to Acting Mayor Young for franchise asked by S. T. Reynolds and Isidoro Armijo for interurban narrow gage line through streets of city.

Findlay, O.—Toledo, Urban & Interurban Railway Co. will build 32 miles of new line during coming year, to extend from Findlay to Kenton.—C. F. Smith, city, General Manager.

Enid, Okla.—Council has granted street railway franchise to C. H. Bosler and J. J. Hall.

Enid, Okla.—Stockholders of Enid City Railway have decided to extend interurban line to East Enid, three miles north-east of city.

Guthrie, Okla.—Webber Falls, Shawnee & Western Railroad Co. has been incorporated with stock of \$100,000; company proposes to build a road from Webber Falls to Warner, thence southwest through Muskogee, McIntosh, Okmulgee, Okfuskee, Lincoln and Pottawatomie Counties to Shawnee; distance 105 miles; permanent survey has been completed.—Messrs. Peyinghaus, Campbell, Russel, Crouch and J. F. Sparrow, of Porum, and O. L. Hayes, of Webbers Falls, are incorporators.

Okmulgee, Okla.—Okmulgee Street Car Co. is considering construction of extension to Hamilton Switch oil field.

Oklahoma City, Okla.—Citizens' Traction Co. will soon build an extension to Packington, besides doing other work.—L. E. Paterson, President.

Portland, Ore.—The Oregon Electric Railway Company will construct about 50 miles of new track during 1910, one branch extending from Tigard to McMinnville, Ore.; the other connecting Salem and Albany; distance 25 miles.—George F. Nevins, Purchasing Agent.

Portland, Ore.—Broadway car line will be extended along 24th st. to Fremont.

Salem, Ore.—Oregon Electric Railway Co. has been incorporated; railway will include extension from Salem to Roseburg.

Charleroi, Pa.—West Side Electric Street Railway Company will construct interurban railway extending from this city to Ellsworth; distance 10 miles.—D. G. Callahan, Belle Vernon, General Superintendent.

McKeesport, Pa.—Organized for purpose of building belt line electric railway about city, charter has been granted to McKeesport Belt Line Street Railways Company, composed of local men. President is Samuel D. Foster, County Road Engineer. Directors of the concern are David A. Foster, A. D. Foster, Jr., and W. E. Hartman; capital \$12,000.

Oakmont, Pa.—Pittsburg and Allegheny Valley Street Railway will construct electric railway from Oakmont to Kittanning.

Coleman, Tex.—Nearly all right of way has been secured from city to Brady for Coleman, Llano & Southern Railway; work will commence soon.

Salt Lake City, Utah.—Utah Light and Railway Co. is planning to extend its suburban lines.

Fredericksburg, Va.—As soon as preliminary surveys and arrangements can be completed Richmond and Chesapeake Bay Railway, electric line now in operation between Richmond and Ashland, will be continued from Ashland to Fredericksburg and thence on to Washington; power for operating the line will be furnished from this city.

Aberdeen, Wash.—County Commissioners have granted application of Eldridge Wheeler for construction of electric interurban railway over county roads.

Chehalis, Wash.—Twin City Electric Co. will improve street car system.

Hogquiam, Wash.—County Commissioners have granted Montesano franchise to Eldridge Wheeler and his associates for electric line over every public road in the county.

Seattle, Wash.—Seattle Electric Company will at once construct line on 6th ave. N. W.—E. E. Potter, General Manager.

Chippewa Falls, Wis.—C. R. Brant, Madison, is considering construction of electric railway to La Crosse, via Galesville.

La Crosse, Wis.—The La Crosse Street Railway Company will issue \$50,000 bonds; proceeds will be used for purchase of new cars, power house equipment and for improvements and extensions to its track system.

Milwaukee, Wis.—Milwaukee Western Electric Railway Company will construct electric railway to Beaver dam; distance 56 miles.

Calgary, Alta., Can.—Calgary Street Railway Co. will build extension of about 12 miles.—Thos. H. McCauley, General Manager.

Hamilton, Ont., Can.—Hamilton, Waterloo & Guelph Railway Company is planning extensions during 1910 which will require the construction of about 60 miles of new track.—John Patterson, General Manager.

London, Ont., Can.—Southwestern Traction Company is considering construction of extensions to its system of from 20 to 40 miles.—S. W. Mower, General Manager.

BRIDGES

Globe, Ariz.—Petition has been presented by Jack Suter, Lee Middleton and W. W. Cunningham, asking that bridge be built on Broad st. across Final wash on east side of the street; City Engineer has been ordered to secure bids for building of 8-ft. iron bridge.

Little Rock, Ark.—City will construct concrete bridge over Swaggerty Branch on High st.; \$5,000 is available.—E. A. Kingsley, City Engineer.

San Rafael, Cal.—Board of Supervisors has set aside \$3,000 for construction of draw-bridge between towns of Belvidere and Tiburon.

Pueblo, Col.—City has decided to replace present structure over Arkansas River at Union ave. with new bridge 80 ft. in width and 151 ft. long.—D. P. Gaymon, City Engineer.

Arcadia, Fla.—County Commissioners have decided to erect steel bridge across Shell Creek.

Jacksonville, Fla.—Board of Public Works is considering construction of viaduct at Enterprise st.

McDavid, Fla.—Escambia and Santa Rosa Counties will construct steel bridge across Escambia River.

Elberton, Ga.—Elbert County is considering construction of bridge across Broad River.

Barry, Ill.—Wabash & St. Louis Railroad has decided to construct concrete bridge; cost \$10,000.

Hopedale, Ill.—Highway Commissioners of this and Dillon Townships are considering construction of iron bridge across Mackinaw River at Waltnireford.

Quincy, Ill.—Highway Commissioners of Clayton Township have asked for \$1,689 for steel bridge over Missouri Creek at Clayton.

Crown Point, Ind.—Plans are being prepared by W. F. Bridge, Surveyor Lake County, for two bridges, one a concrete bridge, cost \$20,000, to be built over the creek at Main st., Lowell, and other a bascule bridge over the Calumet River, at Hohman st., Hammond.

Armourdale, Kan.—Preliminary plans are being prepared by J. M. Lindsey, County Engineer, Kansas City, and Daniel Bontecou, Consulting Engineer, Dwight Bldg., Kansas City, Mo., for viaduct, at Kansas ave., Armourdale, for Board of Commissioners of Wyandotte County.—F. M. Holcomb, Kansas City, Kan., Clerk.

Atchison, Kan.—Engineer L. S. Hereford is preparing plans for number of small steel bridges for Atchison County; bids will be called for in spring.—Edward Iversen, County Clerk.

Rising Sun, Md.—State Road Commission has decided to construct 70-ft. iron bridge, with concrete floor, across creek at Howard Brown's mill.

Lansing, Mich.—Aldermen will recommend favorable action by Council on construction of bridge across Grand River.

Saginaw, Mich.—Council is considering construction of new bridge rather than make repairs on old structure.

Trenton, Mich.—Township Council has called election Dec. 28 on \$175,000 bonds for construction of bridge from this city to Grosse Isle.

International Falls, Minn.—Minnesota & International R. R. Co. has decided to construct bridge near Tenstrike.

Vicksburg, Miss.—Vicksburg, Shreveport & Pacific Railway and other roads are considering construction of viaduct over Cherry st. railroad crossing.—D. D. Curran, New Orleans, La., General Manager.

St. Louis, Mo.—Terminal Association has decided to construct two viaducts at once and two within three years.

Rochester, N. Y.—Plans are being prepared by City Engineer E. A. Fisher for reinforced concrete bridge, 513 ft. long;

over Genesee River, at Central ave.; cost \$150,000.

White Plains, N. Y.—Trolley company will be asked to construct bridge where tracks cross village line on Tarrytown rd.

Dayton, O.—Following rejection by County Engineer Moritz of plans for the proposed overhead crossing of Franklin pike south of Miamisburg on the new route of Big Four Railroad Co., company has filed new set of plans and they are now being considered.

Norwalk, O.—County Commissioners are considering replacing present wooden structure over Huron River at Monroeville with modern steel structure.

Tiffin, O.—Seneca County Board of Commissioners has ordered County Surveyor to prepare plans for F. E. Brundage bridge in Eden Township, and for William Cassner and Kemp bridges in Venice Township.

Zanesville, O.—Construction of bridge over river at 5th st. is being considered; cost \$150,000.—Howard McDonald, Clerk County Court.

Muskogee, Okla.—Missouri, Oklahoma & Gulf Bridge & Railway Co. has been incorporated to construct a bridge over Red River.

Albany, Ore.—Linsa and Marlon Counties are considering erection of steel bridge over Santiam River; cost \$19,000.

Astoria, Ore.—County Court has decided to construct bridge over Elk Creek; structure will be 500 ft. in length.

Philadelphia, Pa.—Citizens will vote at February election on \$5,000,000 permanent loan; \$100,000 will be used for repairing bridges.

Scranton, Pa.—Viaduct will be constructed on Mulberry st.—W. A. Schunk, City Engineer.

Woonsocket, R. I.—Council has appropriated \$4,800 for building bridge, 20 ft. wide, across Blackstone River and constructing 300 ft. of road.

Portsmouth, Va.—Street Committee has provided estimate for construction of concrete bridges on 1st st. causeway.

Bellingham, Wash.—County Commissioners are considering issuance of \$80,000 for repairing bridge.

Puyallup, Wash.—Business men, including Senator W. H. Paulhamus, are urging erection of bridge across Puyallup River.

Seattle, Wash.—Tentative plans by Great Northern and Oregon & Washington for construction of two new bridges over government waterway at Salmon Bay are being considered by Major C. W. Kutz, U. S. A., Corps of Engineers.

Seattle, Wash.—Erection of viaduct on Madison st., as proposed by President Jacob Furth, of Seattle Electric Co., is being considered.

Seattle, Wash.—Street Committee has recommended erection of bridge from 15th ave. W. across Smith Cove waterway to 23d ave. W. and on 23d ave. W.; cost \$50,000.—R. H. Thomson, City Engineer.

Spokane, Wash.—West Side Improvement Club is urging Council to construct bridge across Hangman Creek.

Tacoma, Wash.—Residents of Firwood have petitioned for erection of bridge over Puyallup River.

Walla Walla, Wash.—Board of County Commissioners will receive bids for erection of bridge over Touchet River on Harve Shay rd.; plans prepared.

Waukesha, Wis.—L. C. Klug, Assistant City Engineer, Milwaukee, has recommended the construction of reinforced concrete structure to replace present Broadway bridge; cost \$5,000.

Toronto, Ont., Can.—Contract will probably be let in spring for Queen st. high level bridge.—C. H. Rust, City Engineer.

BIDS RECEIVED AND CONTRACTS AWARDED

Jackson, Cal.—C. W. Swain, of Ione, has been awarded the contract for building the steel bridge over Jackson Creek at \$1,170. The Amador City bridge contract was awarded to the Berkeley Steel Co. for \$2,630.

Tampa, Fla.—Hillsboro County Commissioners have awarded contract to Roanoke Bridge Co., Roanoke, Va., at \$6,950 to construct steel bridge across Hillsboro River.

New Iberia, La.—New Iberia, St. Martin's & Northern Railroad has awarded subcontract to Jewett Construction Co., Springfield, Mo., to construct bridges and buildings on railroad being constructed from Port Barre, La., to New Iberia; distance 48 miles.—R. J. Lockwood, Chief Engineer.

Elkton, Md.—County Commissioners of Cecil have closed contract with J. S. McIlwaine & Co., of Chambersburg, Pa., for iron bridge over Big Elk Creek, near Rickett's Mill, contract price being \$1,666.

Boston, Mass.—Contract for repairing Western ave. bridge, bids opened Nov. 8, has been awarded to Wm. H. Ellis, 18 Tre-

mont st., Boston, for about \$6,429.—Jos. H. Stack, Secretary Commissioners.

Buffalo, N. Y.—State Superintendent Public Works opened bids for work of constructing a highway bridge over Erie Canal at Georgia st., Buffalo; there were but two formal bids submitted, that of Lupfer & Remock, of Buffalo, \$18,121; Henry Tosh & Son, of Port Byron, \$19,992; Engineer's estimate was \$17,268. Proposals were also received from Great Lakes Construction Company, of Buffalo, and Monarch Engineering Company, but deposit of ten per cent of the bid having been omitted in both cases, proposals were declared informal and not read.

Rome, N. Y.—Board of Public Works has awarded contract to Lay & Wa-pole, of Oswego, for sum of \$6,020 for construction of new bridge across Mohawk River at extension of East Bloomfield st.

Asheville, N. C.—Buncombe County Commissioners have awarded contract to C. B. Clark & Co., 10 East Lexington st., Baltimore, Md., at \$62,530, for construction of West Asheville bridge.

Cincinnati, O.—Bids were opened Dec. 6 by Board of Public Service, for constructing lift bridge at Mohawk pl. over Miami and Erie Canal, and contract has been awarded to Grainger & Co., Inc., Louisville, Ky., for \$34,300. Other bids received were: F. J. P. Brackett, Cincinnati, \$41,000; Capitol Construction Co., Columbus, \$41,150; York Bridge Co., York, Pa., \$42,000.

Mansfield, O.—Board of Richland County Commissioners opened bids Dec. 14 for construction of new Rummel bridge at Butler. Following bids were submitted for job:

Frank A. Bone, \$2,650.
Mt. Vernon Bridge Co., superstructure, \$2,915; kreodone floor, \$539.50; oak floor, \$243.75.

The Capitol Construction Co., superstructure, \$2,925; Kreodone block floor, \$400; carbolineum floor, \$400; oak floor, \$190.

The Capitol Construction Co., Superstructure, \$2,200; kreodone block floor, \$400; carbolineum floor, \$400; oak floor, \$195; plan submitted, \$625.

The Capitol Construction Co., superstructure, \$2,144; kreodone floor, \$400; carbolineum floor, \$400; oak floor, \$195; plan submitted, \$680.

Modern Construction Co., superstructure, \$2,949; kreodone floor, \$581; oak floor, \$300. Hughes & Keenan Co., superstructure, \$2,624; oak floor, \$255.

W. A. Armstrong, creosote floor, \$498; oak floor, \$310.

Medina Bridge Co., superstructure, \$2,299; creosote floor, \$550; oak floor, \$280.

Riverside Bridge Co., superstructure, \$2,750.

The Cleveland Bridge Co., superstructure, \$2,800; kreodone block floor, \$465; carbolineum floor, \$390; oak floor, \$290.

Contract was awarded to Medina Bridge Company.

Gallatin, Tenn.—Bridge Commissioners of Sumner County have awarded to the Nashville Bridge Co., Nashville, Tenn., contract for construction of what is known as the Albright bridge on Dry Fork; also for a bridge across Pryor Fork; bridges are to be completed by Jan. 1, 1910.

Seattle, Wash.—Lowest bid opened Dec. 3 by Board Public Works for constructing the Salmon Bay drawbridge was submitted by International Contract Co., 738 New York Bldg., at \$16,005.

MISCELLANEOUS

Greensboro, Ala.—Council has taxed residents on Main st. for purpose of sprinkling street.

Greensboro, Ala.—County will at once rebuild jail; plans prepared.

Huntsville, Ala.—Mrs. William H. Echols, city, has offered to give city two lots for site in event that city shall build Carnegie library building.

Los Angeles, Cal.—Board of Public Works has approved plans of Architects Hunt, Eager & Burns, Laughlin Bldg., for eight artificial stone drinking fountains in public playgrounds.

Oakland, Cal.—City will extend police protection to annexed districts.

San Francisco, Cal.—Finance Committee will recommend appropriation for erection of police station in Richmond District.

San Francisco, Cal.—Public Utilities Committee of the Board of Supervisors of city and county of San Francisco has recommended that entire bond issue of \$4,000,000 be sold to syndicate composed of E. H. Rollins & Sons, N. W. Halsey & Co., N. W. Harris & Co. and A. B. Leach & Co. For all bonds offered the bid was \$4,278,824.

San Francisco, Cal.—Board of Supervisors is considering \$10,000 appropriation for installation of street signs in various parts of city.

Colorado Springs, Col.—Council is considering proposition to park Cascade ave.;

parking will be 30 ft. wide in center of avenue, with driveway on each side and concrete guttering, to correspond with parking already done.

Hartford, Conn.—Street Board will advertise for bids for construction of electric trolley and "isle of safety" at corner of Pearl and Trumbull sts.; cost \$500.—Parker Morse Hooper, Architect.

New Haven, Conn.—City has sold \$25,000 voting machine bonds to Connecticut Savings Bank, city; also \$100,000 improvement bonds.

Washington, D. C.—Report has been received from an American consular officer in Africa stating that a government official in his district has expressed his desire to improve the conditions of the city in which he is located. He mentioned among other public works contemplated the following: The laying down of a railway to a neighboring city, covering a distance of about 750 miles, improvement of the roads in the city, construction of the port, the introduction of automobiles, and the installation of electric tramways and electric lighting. The local official has requested the consular officer submitting the report to call these matters to the special attention of American firms, with a view to tenders in connection therewith.

Atlanta, Ga.—Park Board will ask for \$86,736.60 to run department during year.

Indianapolis, Ind.—Board of Park Commissioners is considering question of improvements to be made in four park districts next year; \$200,000 is available.

Indianapolis, Ind.—Bids will be opened Dec. 24 by Board of Public Service for construction of public comfort station at corner of Kentucky ave. and Illinois st.; cost \$20,000.

Wichita, Kan.—Richards, McCarty & Bulford, Architects, The Ruggery, Columbus, O., are preparing plans for \$150,000 auditorium.

Boston, Mass.—Incoming Legislature will consider bill providing for construction of subway to be known as West End Loop; cost, including land, stations, etc., \$1,700,000; loop will be built by Transit Commissioners and leased to Boston Elevated Railway.

Boston, Mass.—Plans are being prepared for construction of \$35,000 addition to L st. bath house.

Boston, Mass.—Board of Aldermen has passed loan order appropriating \$10,000 for library building in Ward 22.

Haverhill, Mass.—Council is considering \$12,000 bond issue for purchase of playgrounds in Bradford District and for supplies for fire department.

Melrose, Mass.—Citizens have defeated proposition to issue \$36,000 for playgrounds.

Palmer, Mass.—Palmer Historical Society is urging establishment of playground.

Springfield, Mass.—Park Board has petitioned for \$20,000 for improving parks and providing salaries.

Brookhaven, Miss.—Board of Aldermen has adopted resolutions for issuance of \$12,000 bonds for erection of city hall and office building.

Hoboken, N. J.—Hudson County Park Commission has decided to transform old St. George cricket grounds, Clinton st., into playground for children.

Newark, N. J.—Commissioner A. R. Denman, Chairman Committee on Streets and Highways, has asked \$15,000 appropriation for cleaning streets.

Trenton Junction, N. J.—Through purchase of plot between Trenton ave. and the Sunday School Hall by John Kurtz, Trenton Junction is to have park.

West Caldwell, N. J.—H. V. Coudert and Thos. Gladding, city, and J. C. Sprigg, Essex Fells, are interested in proposed public park for three boroughs.

Buffalo, N. Y.—Park Department has decided to expend \$75,000 on erection of buildings at Buffalo Zoo.

Mamaroneck, N. Y.—C. T. Oakley, city, has prepared plans for municipal building to be erected on Post Road.

New York, N. Y.—City will erect public bath house on E. 142d st. near Brook ave.

Rochester, N. Y.—Establishment of plant for reduction of rubbish is being considered.—Edwin A. Fisher, City Engineer.

Troy, N. Y.—Rensselaer County is considering erection of jail.

Dayton, O.—Mayor Burkhardt is urging need of additional or else more centrally located patrol house, station house and police court quarters.

Gallipolis, O.—Gallia County has sold \$4,000 infirmity bonds to Commercial and Savings Bank, city.

Muskogee, Okla.—County Weigher W. W. Bunks is urging purchase of scales and installation near market square.

Oklahoma, Okla.—Plans are being prepared by Landscape Architect W. H. Dunn, 4021 Oak st., Kansas City, Mo., for boulevard and park improvements for Park Commissioners.

Altoona, Pa.—Health Department will

renew its request of Councils for appropriation for establishment of garbage crematory, when the estimate is submitted to Finance Committee next month.

Duquesne, Pa.—Board is considering \$150,000 bond issue; city hall, direct pumping line to standpipe, new standpipe, streets and sewers are needed.

Harrisburg, Pa.—Plans for Isle of safety and underground public comfort station without superstructure for Market sq. have been adopted by Board of Trade; new drawings were prepared by Architect Albert Kelsey, of Philadelphia, who submitted plan that was adopted by Board several months ago.

Harrisburg, Pa.—City will have to provide for garbage collection in Eastmere and also in Kunkel tract which came into city after garbage contract was signed with Pennsylvania Reduction Company.

Philadelphia, Pa.—Citizens will vote in February on \$8,000,000 permanent loan; \$750,000 will be used for river front improvements, \$100,000 for playgrounds, \$100,000 for Soldiers' Monument, Fairmount Park, and \$250,000 for League Park.

Williamsport, Pa.—Architect J. J. Litzlman will prepare plans for \$125,000 market house to be erected on market st.

Sioux Falls, S. D.—Minnehaha County is considering erection of \$50,000 jail.

Chattanooga, Tenn.—City is considering erection of auditorium with seating capacity for 6,000.—V. E. DeGeorgis, Chairman Committee.

El Paso, Tex.—Council has adopted resolutions to purchase land along river for garbage incinerating plant, stables and sewage disposal plant.

Fort Worth, Tex.—Park Board will construct swimming beach along Clear Fork, also wading pond in Forest Park.—Address Park Engineer Vinnedge.

Houston, Tex.—City has adopted plans by Mauran & Russell, Houston and St. Louis, Mo., for proposed fireproof auditorium.

Salt Lake City, Utah.—Chief of Police S. M. Barlow has recommended installation of up-to-date box signal system.

Petersburg, Va.—Board of Police Com-

missioners is considering establishment of police patrol system.

Seattle, Wash.—Library Board has asked for election on \$250,000 bond issue in order to provide sites for additional buildings.

Charleston, W. Va.—Kanawha County Court has asked Architect David Dick for plans for remodeling of the basement or lower floor of county jail; as soon as plans are submitted bids will be asked.

La Crosse, Wis.—Mrs. G. C. Hixon has purchased Grand Daddy Bluff for \$35,000 and will donate it to city for park.

BIDS RECEIVED AND CONTRACTS AWARDED

Sacramento, Cal.—Seven bids ranging from \$2,000 to \$4,000 below the estimated cost of improvements at the County Hospital have been received by the Board of Supervisors and referred to the Contract Committee for a report, and that of the Matthews Construction Co. for \$11,000 is the lowest. An additional ward for the hospital will be constructed; a patent floor will be laid in the dining room; an addition will be built to the laundry; a new cottage will be built for the pest-house; the structure now used as a pest-house will be remodeled and converted into a place for the care of patients afflicted with contagious and infectious diseases. The bids were as follows: Wendt & Morrow, \$13,300; Matthews Construction Co., \$11,000; Ransome Concrete Co., \$13,920; Lathrop & Johnson, \$11,900; Siller Bros., \$13,925; W. M. Kennedy, \$11,425. The cost estimated by Architect Herold was \$15,000.

San Francisco, Cal.—Board of Public Works has awarded following contract to Foster & Vogt: To put in fireproof material in interior of new county hospital, for \$102,897; to Pacific Rolling Mills Company, contract for structural steel for new county jail, for \$70,660.

Vincennes, Ind.—The Board of Works has awarded contract for the erection of a concrete fence around the lot on which the new hose house No. 4 has been built; bids

were submitted by M. H. Hogue, C. M. Gilmore and Norton & Mullin, and the contract was awarded to C. M. Gilmore, his bid being an agreement to construct the fence according to plans for 60c. a lin. ft. and 45c. a ver. ft. for the posts. Mr. Hogue's bid was 85c. per lin. ft., 40c. per ft. for posts and 75c. for post caps. Norton & Mullin's bid was 70c. per lin. ft. and \$2 each for posts.

New York, N. Y.—Bids were received Dec. 2 by Department of Parks for repairing seawall along waterfront of Battery Park, Borough of Manhattan. Bids were as follows: Alamo Construction Co., 215 West 125th st., \$11,460, awarded contract; D. Bonacci, \$21,306; Joseph De Benedette, \$12,642; Phoenix Construction Co., 13 Park Row, \$22,495; Thomas H. Hart, \$13,947; Benjamin J. Tuite, \$15,593; Atlanta Contracting Co., \$13,800; Haggerty Contracting Co., 13 Park Row, \$13,013; Ralph Brown, \$12,095.

Cincinnati, O.—The contract for constructing concrete steps from Delta ave. to the Grandin rd. viaduct was let by the Board Public Service to J. C. Russell at his bid of \$3,061.50.

Dayton, O.—County Commissioners have awarded contract for installing one-pipe heating system at county infirmary to M. J. Gibbons, on his bid of \$4,744.

Philadelphia, Pa.—Although Edward F. Fonder, who has had the major portion of the Dock Department contracts since its inception, was the lowest bidder Dec. 13 for the work of building the substructure of the new Vine st. pier, Mayor Reyburn awarded the contract to W. S. P. Shields, who submitted a bid of \$294,000. Fonder, whose bid was \$259,595, declares that he will fight the award and will start injunction proceedings to that end. The Shields bid was the third from being the lowest. Roth Fonder and the Snare & Triest Constructing Co., of New York, with a bid of \$290,000, were below him; but the out-of-town company was turned down by the Mayor upon Acting Director Hasskari's recommendation that the job should be given to a local contractor.

TOO LATE FOR CLASSIFICATION

STREET IMPROVEMENTS

Bridgeport, Conn.—Public Works Director Blitz will ask for \$15,000 for paving of Stratford ave. with wood blocks; funds will also be asked for paving of Congress st. with brick.

West Palm Beach, Fla.—Citizens have voted \$200,000 bonds for construction of good roads.

East St. Louis, Ill.—Bids will be received on or about Dec. 29 for improving East 25th st., as follows: 1,000 cu. yds. excavation placed in fill, at 20c.; 3,200 cu. yds. excavation removed, at 20c.; 9,095 sq. yds. vit. brick paving on 6-in. concrete base, 2-in. sand cushion and cement grouted, at \$1.52; 5,095 lin. ft. sandstone curb, set on concrete 6 in. x 12 in., and backed with same 6 in. x 10 in., 60c.; total, \$18,300.—W. J. Crocken, City Engineer and Engineer Board of Local Improvements.

Peoria, Ill.—Residents of Adams st. have decided on asphalt as material to be used in paving that thoroughfare; total cost, \$36,067.45.

Evansville, Ind.—Bids will be received Dec. 28, 2 p. m., for repairing certain highway.—Wm. Atkins, Trustee, Pigeon Township.

Richmond, Ind.—Bids will be received Dec. 27, 11 a. m., for construction of grade and fill at Armentrout bridge.—D. S. Coe, County Auditor.

Osage, Ia.—City has decided to pave Main st. with concrete next spring.

Duluth, Minn.—City Engineer has completed estimates of cost of paving Garfield ave. Donnellite or tar macadam will cost \$74,000; granite, \$86,000, and sandstone blocks, \$107,000. Estimates for another big paving job are being prepared; proposed improvement is paving of East Superior st.; estimate for paving Lake ave. with sandstone blocks is \$8,000; figures have also been completed, showing that it will cost \$51,000 to pave Grand ave., West; cost of paving First ave., East, with granite is placed at \$12,000.

Owatonna, Minn.—Paving of several streets is being considered.—C. J. Servatius, City Clerk.

Cincinnati, O.—Bids will be received Jan. 7, noon, for improvement of Stone Mill rd.—Stanley Struble, President Board of County Commissioners.

Dayton, O.—City Engineer Cellarius has submitted to Servers estimated cost of paving first alley north of First st.; for asphalt price is given at \$2.058.15, and for brick, \$1.716.85.

Guthrie, Okla.—Bids will be received Jan. 6, 5 p. m., for construction of 50 crosswalks.—A. A. Leer, City Clerk.

McKeesport, Pa.—Bids will be received Jan. 4, 4 p. m., for improvement of Coursin st.—C. E. Soles, City Controller.

Philadelphia, Pa.—Council is considering bill appropriating \$200,000 out of certain loan moneys for resurfacing country roads.

Prospect Park, Pa.—Residents will vote in February on \$15,000 bonds to macadamize streets.

Houston, Tex.—City will pave Travis st. at cost of about \$12,000, and Washington st. at about \$30,000.

SEWERAGE

Pleasanton, Cal.—Board of Trustees will consider election on \$40,000 bonds for construction of sewer system and addition and completion of city water works.

Dover, Del.—Kent County Mutual Ins. Co., city, has purchased \$25,000 street and sewer bonds.

Bell Plaine, Ia.—Council is planning to lay between four and five miles of sanitary sewers.

Lawrence, Kan.—Bids will be received Jan. 3, 5 p. m., for furnishing material and construction of lateral sewers in Bew's ave., requiring 1,500 ft. of 8-in. pipe, 1 flush tank complete and 34 "Y" junctions; also in Maryland st., requiring 1,900 ft. of 8-in. pipe, 1 flush tank complete and 60 "Y" junctions.—F. D. Brooks, City Clerk.

Detroit, Mich.—Bids will be received until Jan. 3 for \$149,000 sewer bonds.—F. E. Doremus, City Comptroller.

Duluth, Minn.—Bids will be received Dec. 24, 10 a. m., for construction of sanitary sewer in Superior st.—J. W. Preston, President Board of Public Works.

Fulda, Minn.—Plans are being prepared by Engineer L. P. Wolff, St. Paul, for system of sewers.

Carthage, Mo.—City Engineer F. B. Newton will prepare plans for construction of sewers in District No. 7.

Maywood, N. J.—Engineer Fred Page has about completed surveys for map on which proposed new sewerage is to be based.

Ventnor City, N. J.—Bids will be received Dec. 29, 8 p. m., for purchase of \$25,000 sewer and water bonds.—E. S. Royal, City Clerk.

Louisville, O.—Bids will soon be called for constructing sewage disposal plant; cost \$35,000; 5 miles of 8-in., 10-in. and 12-in. tile piping will be needed.—H. Rebrassier, City Clerk.

Sebring, O.—Bids will be received Dec. 27, noon, for furnishing labor and material needed for construction of sanitary sewers as follows: 14,300 lin. ft. of 8-in. pipe sewer; 3,480 lin. ft. of 10-in.; 3,060 lin. ft. of 12-in., and 2,214 lin. ft. of 15-in.; 37 manholes and 20 flush tanks.—Harry Jenkins, Village Clerk.

Sebring, O.—City has sold \$25,000 sanitary sewer bond issue to Tillotson & Wolcott Co., Cleveland, for premium of \$1080.

Muskogee, Okla.—Bids will be received Dec. 27, 5 p. m., for construction of three district sewers.—Chas. Wheeler, Jr., City Clerk.

Corliss, Wis.—Village has selected U. S. Shields, Chicago, to make general survey for sewer system, similar to purification plant now in operation at West Allis; septic system like that of Racine County Insane Asylum will be considered.

WATER SUPPLY

Pleasanton, Cal.—Board of Trustees will consider election on \$40,000 bonds for completion of city water works and construction of sewer system.

Fort Wayne, Ind.—Council is considering ordinance putting all water consumers on meter basis prior to Jan. 1, 1914.

Canton, Kan.—Town will install water and electric light system.

Solomon, Kan.—Town will install water and electric light system.

Crowley, La.—Citizens will vote on bonds for construction of permanent water works and electric light plant.

Lewistown, Mont.—Bids will be advertised for covering city reservoir with galv. iron.—Address City Engineer Wasmansdorf.

Ventnor City, N. J.—Bids will be received Dec. 29, 8 p. m., for purchase of \$25,000 water and sewer bonds.—E. S. Royal, City Clerk.

Albany, N. Y.—City has awarded \$200,000 water bonds to W. N. Coler & Co., at 101.075.

Ardmore, Okla.—Bids have been rejected for construction of proposed intake for water plant; new bids will be asked.—H. H. Sayre, City Engineer.

Durant, Okla.—Citizens will vote Dec. 28 on \$20,000 bonds for construction of sedimentation basin.

Pottsville, Pa.—Schuylkill Haven Manufacturers' Association has taken action because town is without a water supply; capitalization of from \$100,000 to \$200,000 was provided to procure permanent water

rights, and water company organized, with G. P. W. Saul as president.
Corliss, Wis.—Installation of water system is being considered.

LIGHTING AND POWER

Alameda, Cal.—Mayor W. H. Hoy is urging \$10,000 appropriation for additional lighting apparatus.

Seaford, Del.—Dissatisfied with electric light service, merchants are organizing their own company.

Streator, Ill.—With view to extending his present heating, lighting and power system to entire business district and portion of residence section, D. Heenan has petitioned Council for 25-year franchise to build and operate plant and system.

Zion City, Ill.—Geo. Goodnow, manager of North Shore Consolidated Co., Muskegon, has asked for franchise to pipe gas into this city.

Evansville, Ind.—Evansville Public Service Co. will begin work at once on proposed plant.—C. H. Gillham, Secretary.

Fort Wayne, Ind.—Council is considering ordinance appropriating \$50,000 for purchase of unit for power station and extension of commercial lines of city's lighting plant.

Canton, Kan.—Town will install electric light and water system.

Gypsum, Kan.—Town is considering installation of electric lighting system.

Solomon, Kan.—Town will install electric light and water system.

Crowley, La.—Citizens will vote on bonds for construction of permanent electric light and water works plant.

Marblehead, Mass.—City has awarded \$50,000 lighting bonds to E. M. Farnsworth & Co.

Hamilton, Mont.—W. O. Fisk, manager of Valley Mercantile Company's store, has announced that company would start work at once on construction of power plant on Sleeping Child Creek, six miles from Hamilton; light will be transmitted to the city for use in lighting the city; plant will be designed to generate from 1,500 to 2,000 h.p. and will cost in neighborhood of \$125,000.

Sterling, Neb.—The construction of an electric light plant is being considered.

Albany, N. Y.—Auburn Gas Company has asked for authority to issue \$100,000 bonds; proceeds are to be used for the discharge of outstanding obligations, amounting to \$9,936.40, to install 400,000 cu. ft. gas holder at a cost of \$50,000; 22 ft. of 4-in. main, \$16,500; water gas set, \$10,000; meters, \$10,000, and services, \$6,000.—Henry L. Coleman, General Manager.

Akron, O.—Contract for 900 gas lights for the next five years will be let by Board of Control. Mayor Sawyer has vetoed Council resolution authorizing Service Board to enter into contract; Servers had awarded the contract to Scott Kenfield on his bid of \$17 a lamp.

Niles, O.—Hydro-Electric & Gas Company, Warren, under contract to furnish the city lighting plant with electric current, will erect auxiliary plant near present municipal works to provide additional current needed by reason of new industries.

Durant, Okla.—Citizens will vote Dec. 28 on \$30,000 bonds for installation of municipal electric light plant.

Media, Pa.—Light Committee, E. M. Harvey, Chairman, will have plans made for additional building to boiler house.

FIRE EQUIPMENT

New Britain, Conn.—Council is favorable to purchase of auto chemical and hose truck.

St. Joseph, Mo.—City will purchase quantity of fire hose after Jan. 1.—P. P. Kane, Fire Chief.

Polson, Mont.—Fire Chief David Nelson has been authorized to purchase a hose reel, 600 ft. of fire hose, hooks and ladders.

Ft. Hancock, N. J.—Bids will be received Jan. 15, noon, for construction of one double set of firemen's quarters and one fire station.—C. J. Goodier, Constructing Q. M.

Trenton, N. J.—Bromley Place Volunteer Fire Co. has \$1,000 available for purchase of apparatus.

Trenton, N. J.—Prospect Heights Volunteer Fire Co. No. 1 has been incorporated to protect property in this section from fire.—W. C. Cook and E. C. Howell are interested.

Ventnor City, N. J.—Bids will be received Dec. 29, 8 p. m., for \$15,000 fire bonds.—E. S. Royal, City Clerk.

Youngstown, O.—East Youngstown and Struthers are considering purchase of fire engine in partnership.

McKeesport, Pa.—Bids will be received Jan. 3, 4 p. m., for 1,000 ft. of 2½-in. fire hose.—C. E. Soles, City Controller.

Chambersburg, Pa.—Chambersburg, Greencastle and Waynesboro Electric Railway Co. will issue \$40,000 bonds to make extensions from this city to Red Bridge; to build line, length four miles, from Pen Mar to Blue Ridge and to improve electric light plant.

Texarkana, Tex.—Citizens have voted \$15,000 for improvements to fire department.

ELECTRIC RAILWAYS

Hagerstown, Md.—Proposition has been approved by Directors of the Chambersburg, Greencastle and Waynesboro Electric Railway Company for construction of extensions of the trolley lines to Shippensburg and Blue Ridge Summit.

Virginia, Minn.—Eveleth Council has met in joint session with local Council, and street railway franchise sought in the respective cities by W. M. Prindle and E. M. Prindle, of Duluth, who propose to build an interurban railway, was discussed.

Jersey Shore, Pa.—The Jersey Shore and Antes Fort Railway Company contemplates extending its line to New York Central passenger station, distance of about six squares.

Lebanon, Pa.—Charter has been issued to Ephrata and Lebanon Street Railway Company to operate electric line between Ephrata, Lancaster County, and Lebanon; capital of the company is \$425,000 and the length of line will be 22½ miles. D. D. Erb, Ephrata, President; M. Kinport, Henry Westerohoff, Reuben Stine, Ephrata; M. H. Shirk, S. S. Hamenstine, H. B. Hollinger, Lincoln; J. E. Wolf and A. E. Lane, Clay; Harry Benneth, Klinefeltersville, and U. B. Horst, Schaefferstown, Incorporators.

Williamsport, Pa.—Ordinance granting franchise to Sylvan Dell Park Passenger Railway Co. to lay tracks through streets of South Williamsport is being considered by Council.—Attorney H. W. Whitehead is interested.

Providence, R. I.—Boston and Providence Interurban Electric Railroad will build and operate high speed electric line between this city and Boston.

BRIDGES

Maryville, Mo.—Nodaway County Board of Commissioners will construct number of steel bridges; cost, \$22,000.—Geo. Demott, County Clerk.

Grand Island, Neb.—Bids will be received Jan. 12, 2 p. m., for construction and repair of all steel, wooden, pile and truss bridges in county for 1 year, from Mar. 28.—G. H. Poell, County Clerk.

Harrison, N. J.—West Hudson Board of Trade is urging Board of Freeholders to erect bridge over Passaic River between this city and Newark.

Waterloo, N. Y.—Supervisors have granted annual appropriation for bridges over Seneca River.

Columbus, O.—Bids will be received Dec. 27, noon, for constructing trestle and driveway at garbage loading station.—E. W. Hirsch, Secretary Board of Public Service.

Elyria, O.—Plans are being prepared by Bridge Engineer L. L. Gibson for construction of five bridges in spring of 1910.

Superior, Wis.—Representative Miller has introduced into Congress bill to authorize town of Bass Brook to construct bridge across Mississippi River.

Winnipeg, Man., Can.—Bids will be received Dec. 30, 11 a. m., for additions to piers of Louise bridge.—M. Peterson, Secretary Board of Control.

MISCELLANEOUS

Brookline, Mass.—Town will vote on purchase of \$3,800 ambulance.

Omaha, Neb.—City Engineer will be directed to prepare set of stencils and paint names of streets on street railway and telephone poles adjacent to street corners; appropriation of \$1,000 was recommended to start work.

Manchester, N. H.—Construction of garbage incinerator is being considered; cost, \$100,000.—Samuel Lord is interested.

Trenton, N. J.—Retail Merchants' Association has adopted resolutions recommending that Council issue bonds for purchase of river front lands from Ferry st. to Riverview Cemetery for erection of docks and wharves.

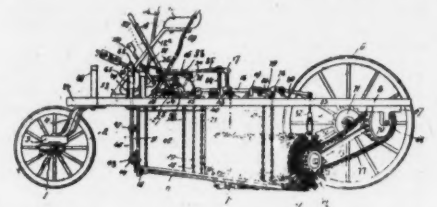
Trenton, N. J.—Trenton's River and Harbor Commission has recommended that contract be given to J. L. Hasskarl, Director of Public Docks and Wharves, Philadelphia, to prepare plans and specifications for proposed improvement of river front property as site of municipal docks and wharves.—Abram Swan, Jr., City Engineer.

Ashtabula, O.—F. C. Wagner, City Auditor, will receive bids until Dec. 29 for \$390,000 river improvement bonds.

PATENT CLAIMS

941,838. STREET-SWEEPER. Joseph F. Wurzer and John G. Hartman, Millvale, Pa. Serial No. 428,985.

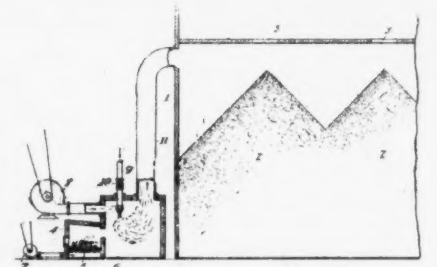
A street sweeper comprising a front truck, a rear truck, a platform supported by said trucks, a depending plate constituting a forward wall carried by said platform, a frame hinged to the lower edge of said wall, gates suspended from said platform and adapted to rest upon said frame, hinged depending doors carried by the side



edges of said platform, latches carried by said forward wall for locking said doors in a closed position, said plate, doors and gates constituting a receptacle for sweepings, a rotary brush arranged in operative relation with respect to said receptacle, means located upon said platform for elevating said frame, means located upon said platform for elevating the confronting edges of said gates, means located upon said platform for releasing the said latches, and means located upon said platform for elevating said doors.

941,630. PROCESS AND APPARATUS FOR ARTIFICIALLY AGING OR SEASONING PORTLAND CEMENT. Thomas A. Edison, Llewellyn Park, Orange, N. J., assignor to Edison Portland Cement Co., Stewartville, N. J., a corporation of New Jersey. Serial No. 365,908.

The process of artificially aging or seasoning Portland cement which consists in mix-



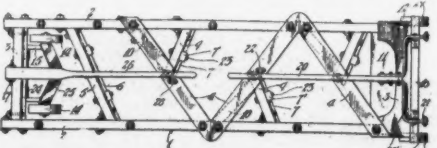
ing atmospheric air, water vapor and products of combustion, and subjecting a body of the cement to the action of the hot mixture, substantially as set forth.

941,886. PROCESS OF LAYING CONCRETE PAVEMENTS. Franklyn S. Lamson, Washington, D. C., assignor to Cosmos Construction Co., Inc., Washington, D. C., a Corporation of the District of Columbia. Original application, Serial No. 119,673. Divided, Serial No. 163,043. Renewed March 6, 1907. Serial No. 360,884.

The process of Portland concrete pavement construction which consists in mixing the material with its temperature at about 29 deg. to 32 deg. Fahr., giving the plastic mass concrete forms of varied figure—such as curb-forms, gutter-forms and main-pavement forms—and emplacing them while fresh in a pavement construction.

941,929. ROAD AND LAND LEVELING MACHINE. William Kaiser, Los Angeles, Cal. Serial No. 468,076.

A leveling machine comprising a main frame, a cutting scraper near the forward end of said frame extending across the frame, spreading scraper means extending across the frame at the rear of the cutting scraper, a wheel frame at each end of the



main frame and movably connected to the main frame, wheels carried by each wheel frame, means for shifting the position of the wheel frame at each end relatively to the main frame to raise or lower the main frame, and means for retaining the shifting means to hold the main frame in raised position.